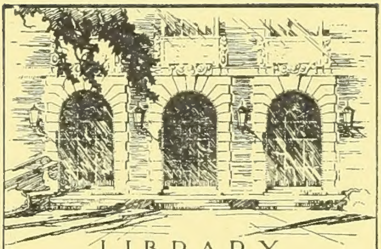

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OF THE
UNIVERSITY OF ILLINOIS

VOL. VII. NO. 1

THE BULLETIN OF THE

ALABAMA POLYTECHNIC INSTITUTE

AUBURN

CATALOGUE
1911-12

26

ISSUED QUARTERLY
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APRIL, 1912

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CALENDAR 1912-1913

Examination for Admission Begins	Monday, Sept. 2, 1912
Session Begins	Wednesday, Sept. 4, 1912
First Term Begins	Wednesday, Sept. 4, 1912
Mid-Term Examinations	Oct. 28-30, 1912
Literary Society Celebration—Thanksgiving Day	Nov. 28, 1912
First Term Ends	Wednesday, Dec. 18, 1912
Second Term Begins	Thursday, Jan. 2, 1913
Mid-Term Examinations	Feb. 6-8, 1913
Senior Class Exercises	Saturday, Feb. 22, 1913
Literary Society Celebration	Saturday, Feb. 22, 1913
Second Term Ends	Saturday, March 22, 1913
Third Term Begins	Sunday, March 23, 1913
Mid-Term Examinations	April 17-19, 1913
Senior Theses Reported	Thursday, May 1, 1913
Sophomore Class Exercises	Thursday, May 1, 1913
Field Day	Thursday, May 1, 1913
Final Examinations Begin	Tuesday, May 20, 1913
Commencement Sermon	Sunday, June 1, 1913
Annual Meeting of Trustees	Monday, June 2, 1913
Junior Class Celebration, 10 A. M.	Monday, June 2, 1913
Military Exercises, 4 P. M.	Monday, June 2, 1913
Festival of Lights, 8 P. M.	Monday, June 2, 1913
Alumni Day	Tuesday, June 3, 1913
Military Exercises, 5 P. M.	Tuesday, June 3, 1913
Senior Class Celebration, 8 P. M.	Tuesday, June 3, 1913
Commencement Day	Wednesday, June 4, 1913

Main Building

CATALOGUE

OF THE

ALABAMA POLYTECHNIC INSTITUTE

STATE COLLEGE

FOR THE

BENEFIT OF AGRICULTURE AND THE MECHANIC ARTS

AUBURN, ALABAMA
1912

Opelika, Ala.:
Post Publishing Company
1912

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1911/12-1912/13

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*In Co-operation with U. S. Department of Agriculture.
†Resigned.

The Institute is a distinctive school of science and its applications; being also the State College for the benefit of Agriculture and the Mechanic Arts, established by the State in 1872 by endowing it with the land-grant appropriation made by the United States Congress in 1862.

The leading object of the Institute, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and applications of science.

In its courses of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts ; and at the same time the discipline and liberal education obtained by the study of language and other sciences are not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the faculty. The Institute thus endeavors to educate as well as instruct, to form character as well as give information of value.

Library

LABORATORIES AND FACILITIES FOR INSTRUCTION

The Institute possesses facilities for giving laboratory instruction in English, history, Latin, and the departments of applied science:

COLLEGE OF ENGINEERING AND MINES.

I. Civil Engineering.—A flourishing department of civil engineering has existed in the Institute since its foundation in 1872. The department occupies four rooms; office, lecture room, and spacious drawing rooms. A large amount of practical work is given the students of this department in field work.

Summer Course.—An attendance upon two sessions of the four weeks' summer course, which offers practical work in plane and higher surveying and in engineering, is required of the students taking civil engineering and mining engineering.

The department is equipped with seven transits, six wye levels, one Dumpy level, one surveyor's compass, one railroad compass, one plane table, an ample supply of tapes, chains, level and transit rods, hand instruments, and other necessary equipment. A complete camping outfit has been purchased, consisting of fourteen wall tents, each accomodating four students, forty folding camp cots, fifty camp stools, cooking utensils, dishes, etc.

II. Electrical Engineering.—In the new engineering building three rooms and an office are used by the department of electrical engineering. One of the rooms is a class room, another is used for the telephone laboratory, and the third is a laboratory for electrical measurements.

The wiring in this building is arranged so that alternating and direct currents of various voltages for power, lighting, and experimental purposes can be delivered to any room.

In connection with the laboratories there is installed a repair and construction shop furnished with a variety of hand tools and with power driven machine tools.

(*a*) The electrical measurement laboratory is furnished with a variety of resistance boxes, bridges, galvanometers, standard cells, condensers, etc., as well as two photometers. In addition to the laboratory instruments proper, just noted, the department is provided with representatives of most of the types of commercial ammeters, voltmeters, and indicating and recording wattmeters, for A. C. and D. C. work. There is also a 30,000 volt transformer for break down tests of insulating materials.

(*b*) The telephone laboratory is provided with a full line of telephonic apparatus, telephones, relays, condensers, plugs, jacks, lamp and other signals, etc., representative of the Bell and a number of independent telephone companies.

Single pieces are so mounted that they can be connected up in any desired manner and thus the connections of any particular system can be made up and tested out.

(*c*) The dynamo laboratory occupies another building. Power for experimental work in the dynamo laboratory is furnished by a 60 horse power, automatic, side crank, Harrisburg engine, belted to line shaft with clutch pulleys, a 15 horse power, variable speed; Westinghouse Type F. induction motor, with controller and special resistance grids, so that the motor may be operated under full load on any controller notch, and a 25 horse power Atlas engine.

The Atlas engine is equipped with a governor which permits the speed to be varied within wide limits without stopping the engine.

This laboratory is equipped with a large number of D. C. and A. C. generators, motors, and other appliances especially adapted for experimental work. In addition, the equipment of the power plant is so arranged as to be readily available for purposes of instruction and investigation.

III. Mechanical Engineering.—A very important adjunct to the text-book work in the mechanical engineering course is the laboratory or experimental work that the students do during the senior year.

The work in heat and steam engineering is carried on in the power house, and the following apparatus is available for instruction: A 35 horse power cross compound engine, especially arranged for experimental work; a Wheeler condenser, and a Worthington air pump and circulating pump; a 160 horse power American Ball angle compound engine; a 125 horse power tandem compound Buckeye engine; a 60 horse power Harrisburg simple engine; a 25 horse power Harris-Corliss engine; a 20 horse power Atlas engine; a 200 horse power Stirling boiler; a 100 horse power Heine boiler; a Deane duplex steam pump; a 4 1-2 horse power gasoline engine; a 2 horse power two cycle gasoline engine; a 2 1-2 horse power kerosene engine; an Ericsson hot air engine; a New York air pump; a Westinghouse air pump; an Ingersoll-Sargent air compressor; an electric headlight engine; indicators, calorimeters, thermometer, pyrometers, scales, steam gauges, and apparatus for testing steam gauges.

A room on the first floor of Broun Hall has been fitted up for a laboratory for the testing of materials. In it are installed a Riehle Brothers' testing machine arranged for making transverse, compression, and tension tests, and micrometer apparatus for measuring the deformation of the specimen under test. There is also provided a cement testing outfit consisting of a testing machine, sieves, briquette moulds, boiler and other apparatus for testing the strength, setting properties, fineness, and specific gravity of cement.

On the third floor of Broun Hall is located a laboratory for testing fuels, gases and lubricants. The present equipment consists of a fuel calorimeter to determine the heating value of fuels, complete apparatus for collecting and testing flue and furnace gases, the apparatus for determining the viscosity, the specific gravity, the flash point and other properties of lubricating oils. A small electric motor has been installed to furnish power for grinding samples, furnishing air blast, stirring, and other such work.

IV. Mechanic Arts.—The instruction in shop work is used as an auxiliary in technical education, and as a school of manual training in the arts that constitute the foundation of most industrial pursuits. The work performed by the students is instructive in character, and is intended to give the greatest amount of instruction in principle with the least repetition of operations, and the smallest consumption of time. The work is executed from drawings, and the instructor in charge of the classes makes the lessons before the class, or gives such specific directions as may be necessary to enable the student to make them. This is supplemented by individual instruction.

All students in the freshman class take this shop work, three periods a week, each period being two hours long. The sophomore class takes two periods a week. The purpose is not to teach a trade, but to train the eye, the hand, and the mind to more perfect cooperation, a training which will be of value in any pursuit in life. This training involves the principles at the foundation of all trades, of equal value to the student who wishes afterwards to learn a trade.

Three-phase electric motors are used for driving the different shops, the motors receiving current from the large alternator in the dynamo room.

(*a*) The wood department is located in a room 90x50 feet, and is provided with a surface planer, a variety saw, a swing cut-off saw, a boring machine, and a grindstone. There are, in addition, thirty benches for carpentry work, with the necessary tools.

(*b*) The wood turning and pattern shop is located in a commodious room 40x60 feet, in the second story of the new power honse. It is equipped with twenty-eight wood turning lathes, a grindstone, a band saw, a buzz planer, a pattern maker's lathe, a double circular saw, and a surface planer.

In each of these departments special tools for occasional use are kept in a tool room for the purpose.

In addition to the regular carpentry tools in the benches, each student is supplied with a set of chisels, and plane irons, with a locker to keep them in, and is held responsible for their care and condition.

(*c*) The forge shop is equipped with twenty-four down draft forges, with anvils, hammers, sledges, and other tools necessary for blacksmith work, including a punch and shear for cutting and punching iron, and a blacksmith drill. The blast is supplied by a blower which is also used for supplying the foundry cupola with blast. The smoke from the forges is removed through underground passages by a 60-inch exhaust fan and discharged into the chimney.

(*d*) The foundry is equipped with a 23-inch Colliau cupola, having a melting capacity of 2,000 pounds of iron per hour, the necessary molding tools for bench and floor work, benches, a core oven, ladles, molding flasks, a foundry crane, etc. There is also a brass furnace with crucibles, crucible tongs, and the appliances necessary for making brass castings.

(*e*) The machine-shop is a room 30x100 feet, and is equipped with nine 14-inch, two 16-inch and one 18-inch engine lathes, one 10-inch speed lathe, a 20-inch drill press, a 10-inch sensitive drill, a 16-inch shaper, two iron planers, one 22-inch by 5-feet and the other 26-inch by 6-feet, a back geared universal milling machine, with vertical milling attachment, a water tool grinder, a bench grinder, a universal grinding machine, a universal cutter and reamer grinder, a twist drill grinder, and a power hack saw. Three of the engine lathes have compound rests, three have taper attachments, and one is fitted with a turret and a large number of special tools and fixtures which practically convert it into a manufacturing lathe, and serve to illustrate the methods of manufacture by duplicate parts.

For chipping and filing, eighteen benches are fitted with vises and each student is supplied with hammer, chisels, files and such other tools as he may need, and a locker in which to keep them. A gasoline engine is installed in one end of the shop, and is used for driving at times when the steam plant is not running.

The tool room is supplied with general machinist tools, such as chucks, drills, reamers, taps, dies, gauges, jigs, and special tools. A convenient room is supplied with lockers for keeping clothes, and basins supplied with hot and cold water for the use of the students. The different shops are equipped with electric lamps, and current is furnished when necessary.

V. Mining Engineering, Geology, Mineralogy.—The department of mining and geology occupies the west half of the new three-story engineering building. The third floor is divided into two well lighted rooms: (1) for lectures and recitations; (2) for draughting. The lecture room is provided with seats to accomodate sixty-four students. In this room is a screen and an electric stereopticon lantern for illustrating lectures. The draughting room has a capacity for thirty. Here the student receives instruction in mechanical draughting and in the calculation and plotting of field notes.

The second story is occupied by the professor's office and the mineralogical laboratory. The latter, like each of the two rooms on the third floor, occupies a floor space of about 960 square feet. In this laboratory there are accomodations for thirty-six. Each student is supplied with a blow pipe outfit, a drawer, and a locker, and each desk is piped for gas. The laboratory is equipped with a good type collection of minerals and lithological specimens, as well as working specimens. There is a collection of fossils and casts illustrating the subject of historical geology. A very useful set of about 100 wooden models of crystals has just been imported. The geological department has several specific gravity balances of various kinds, contact and reflecting goniometers, a petrographical microscope, a good collection of slides both for the petrographical microscope, and the stereopticon lantern.

VI. Ore Dressing.—The ground floor is occupied entirely by the metallurgical laboratory. This laboratory is well equipped with ore dressing plants. The concentrating plant consists of a gyratory crusher, two sets of roll crushers, two bucket elevators, four trommels or revolving screens, two classifiers, four Hartz jigs, and a seven-foot Wilfley concentrating table.

The stamp mill is of the full size Nissen type, circular discharge and interior amalgamating plate. The outside amalgamating plate is of full size, being ten feet long. The stamp mill and concentrating plant are fed from their respective bins by two different types of automatic feed. The ore before entering the bin is crushed to proper size by a Blake jaw crusher. The Model Cyanide plant illustrates the bleaching department of the cyanide process and the extractor box work. It consists of one solution tank, two sand tanks with false bottoms and filters, one gold tank, and a set of extractor box compartments of the up-flow type.

Besides the equipment already mentioned there is an automatic sampler. The cement floor in this department gives a good surface for illustrating coning and quartering in the process of hand sampling.

A twenty horse power motor is the source of power for this laboratory. Shafting, belting, and gears of various kinds transmit the power to the various machines so that a large variety of mechanism is illustrated.

VII. Architecture.—The department of architecture is located in three well lighted rooms in the Main Building. A floor space of 2,250 square feet is occupied by a lecture room, 25x30, a large draughting room, 30x35, a room for freehand drawing, 25x25, and a library, office, and special draughting room, 15x30, all connected by doors. These rooms are well furnished with large, substantial drawing tables and extra tables for freehand drawing, fixtures and additional equipment; a collection of selected plaster casts of classic sculpture and architectural details, a large number of architects' drawings and signed original plates, and several hundred examples of freehand drawings of various sorts; a library of standard works and portfolios of plates illustrating details of decoration and composition; four hundred lantern slides and many photographs of notable monuments of architecture; manufacturers' samples and catalogues; and various current journals devoted to architecture and the allied arts.

VIII. Mechanical Drawing and Machine Design.—The department of mechanical drawing and machine design is supplied with equipment for teaching mechanical drawing, descriptive geometry, kinematics, and machine design.

A convenient cabinet is supplied with a complete set of Schroeder's descriptive geometry models for demonstrating the principles of descriptive geometry and mechanical drawing. A small reference library and a library of selected catalogues of manufacturers, which is being established for the use of students in advanced machine design, occupy a suitable case. A Beck vertical wall file, 36x48 inches, for filing commercial blue-prints, is filled with selected blue-prints furnished by prominent manufacturers, and is made use of by students in machine design.

A number of kinematic models and a large collection of engineering specialties, sectioned to show interior, which were donated by the various manufacturers, occupy a sectional case, and are used in elementary work in machine design and mechanical drawing. The filing envelopes, which contain the students' drawings, are kept in alphabetical arrangement in a case of drawers.

This department is equipped with an outfit for making blue-prints, consisting of two sun printing frames—18x24 inches and 30x42 inches, each mounted on a car and track, and suitable conveniences for washing and drying the prints.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye, and hand to accuracy of observation and execution. Four large well-lighted drawing rooms, which will accomodate (at one period) two hundred and fifty students, are provided with tables, lock boxes, etc. The drawing rooms have been equipped with one hundred and fifty new drawing tables of the most modern pattern.

COLLEGE OF AGRICULTURAL SCIENCES.

IX. Practical Chemistry.—The chemical apparatus recently purchased for the chemical laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to the first-class laboratories, there have been imported a new and improved Schmidt and Hensch's polariscope, ten short-arm balances of latest pattern, Bunsen's spectroscope, Abbe refractometer, and other instruments for delicate and accurate work.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of special value to advanced students, and afford them unusual opportunities to learn the methods of scientific research.

The building contains a large general laboratory, that accomodates sixty students, a special laboratory for seniors that will accomodate thirty students, a lecture room with a capacity of one hundred and fifty seats, and nine other rooms, all appropriated to instruction and research in chemistry.

The State chemical laboratory for the official analysis of fertilizers is connected with the department.

X. Agriculture.—The agricultural experiment station, established in connection with the Institute, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professors in the field, where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

The farm contains 304 acres.

XI. Botany.—The laboratory for plant morphology and histology adjoins the lecture room of the professor, and is well equipped for investigation along these lines. The experimental work in plant physiology and pathology is conducted by the students in the laboratory and adjacent greenhouse, which are well equipped for this important line of work.

A botanic garden is being developed and it is the intention to add as rapidly as possible representatives of the native flora of this state, and a good collection of the native medicinal plants. In this manner it is planned to secure from the garden its maximum assistance in the work of instruction. Special work in plant breeding and biometry will also be conducted in this garden.

XII. Pharmacy.—The laboratory of this department occupies the first and second floors of the annex to the chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations. The equipment for the laboratory includes a Laurent Polariscope; a Pulfrich refractometer; a vacuum distilling and drying apparatus, consisting of 1-2 horse power air pump, vacuum chamber, condenser, and Bruhl receiver for fractional distillation under diminished pressure, a three-horse power electric motor, a complete outfit for organic combustion work, and three chemical balances.

The new pharmaceutical laboratory on the basement floor of the pharmaceutical building, is fitted with steam, and has a full equipment for research work in pharmaceutical chemistry.

The students work in the laboratory with the professor from five to eight hours, six days in the week.

The facilities are increased as means are available.

XIII. Horticulture.—A plot of twenty acres is devoted to orchards, vegetables, fruits, flowers, and grapes. There are well appointed greenhouses, fitted with modern apparatus for ventilation, heat, etc. Accurate experiments are conducted in this department in fruit growing and the culture of the various vegetables adapted to this climate. Students are given in this laboratory practical instruction in grafting, budding, spraying, fertilization, gathering and marketing crops. Valuable co-operative work with the United States Agricultural Department has been undertaken in this department.

XIV. Entomology.—The completion of the new agricultural building makes excellent provision for laboratory work in this subject. The department is well equipped with apparatus for the microscopic work in entomological subjects. An excellent equipment for photographic and photomicrographic work is provided and instruction in these subjects will be given as occasion may arise. The laboratory work is closely related to the lecture work in most cases. Special attention is given to the structure and classification of insects, designed especially to familiarize the student with the principal groups in which insects are divided, and to give a basis for the selection of a proper method of treatment for their control.

The laboratory work includes also practical exercises in the preparation of the most important insecticides with proper types of construction in apparatus for applying various insecticides, and in a general way, making the student familiar with practical insecticidal work. There are also various exercises in the collection of insects and in the study of various pests which occur in the vicinity.

A reference library containing many general works upon entomology and important publications of the national bureau of ento-

William LeRoy Broun Engineering Hall

mology and of the state experiment stations is always accessible to students.

XV. Animal Industry.—The animal industry farm contains about 260 acres; upon this farm is a dairy barn, which accomodates eighteen cows and a beef cattle shed. The students visit the barns and sheds with the instructors and are thus afforded an opportunity to study the various breeds of live stock and to do stock judging work. In addition to the pure breeds of cattle, sheep and swine upon the farm, there are always graded and scrub animals, which are used in the experimental work in feeding, breeding, etc. All of this stock is used in instructional work. The sophomore students are given daily laboratory work in which they learn the use of the Babcock tester and of various types of cream separators; they are also taught the methods of making acidity tests, the use of the lactometer, how to make and judge butter, etc. During the second term of the sophomore year the students are given practice in scoring and judging dairy and beef cattle, sheep, and swine. During the junior year instruction in judging horses and mules is given.

ACADEMIC COLLEGE.

XVI. History and English.—All advanced work in history is conducted by the laboratory method. This plan has been successfully employed in the junior, the senior, and the graduate classes. A large and well lighted room has been set apart for this work in the new library building, where all the resources of the rapidly growing library are easily accessible. This room is equipped with maps, diagrams, charts and suitable tables and chairs. The library is a depository for all government publications. These and other books on American history, with which it is well supplied, offer abundant material for research work in the history of our country. The publications collected by the experiment Station constitute valuable material for study in industrial history.

Opportunity is also offered for laboratory work in English in the sophomore class. This work includes constant practice in writing and an independent study of the various forms of discourse, narrative, descriptive, expository, and argumentative.

XVII. Physics.—The physical laboratory occupies two rooms, one of these being permanently darkened for experimental work in light. It is equipped with numerous standard instruments of precision, such as verniers, micrometers, cathetometers, a horizontal comparator, a Kater's revision pendulum, balances, etc., and a quantity of minor apparatus. Recently there have been added a concave grating spectograph, a large induction coil of 12-inch spark, and other apparatus of value.

XVIII. Military Tactics.—Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition, the military system is used as a means of enforcing discipline and securing good order, promptness, and regularity in the performance of academic duties. The department is supplied with cadet rifles and accoutrements for the corps.

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

XIX. Physiology and Veterinary Science.—The veterinary department occupies a separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, thoroughly equipped laboratories for work in bacteriology, milk and meat inspection, and with museum containing skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

There is a separate dissecting room with cement floor and north roof light, constructed especially for this department. This laboratory is used by the professor and students each afternoon for three months.

BUILDINGS.

The frontispiece is a representation of the Main Building. This building is 160x71 feet, and contains forty-five rooms. It contains lecture rooms, administration offices, physical laboratory, museum, armory, etc.

LANGDON HALL

This is a two-story building, 90x50 feet. The second story is the audience hall, used for commencement and other public occasions.

ELECTRICAL AND MECHANICAL LABORATORIES.

The first story of Langdon Hall is appropriated to the laboratory of first year wood work in mechanic arts.

The machine shop, forge shop, foundry, and boilers are installed each in separate buildings. A handsome building, two stories in height, pressed brick and stone trimmings, has been recently constructed for occupation by the power plant on the first floor and by the pattern making department on the second floor. The dynamo laboratory occupies a separate building.

BROUN ENGINEERING HALL.

The alterations and additions to the William LeRoy Broun Engineering Hall were completed and the building occupied in September, 1910. The finished structure is 250 feet long, 50 to 90 feet deep,

Chemical Laboratory

and three and four stories in height, enclosing a floor area of 43,500 square feet. In construction this building is practically fire proof, and in exterior design conforms in general to the other buildings on the campus. The walls are laid up in selected red brick, with limestone and terra cotta trimmings.

Offices, lecture rooms, and laboratories for the departments of mechanical, electrical, mining, and civil engineering, machine design, and drawings are located within this building, and all the interior accommodations are especially arranged to facilitate the special work of each department.

Expansion into fully equipped and commodious laboratories will very naturally increase the efficiency of the College of Engineering and Mines. This building, an illustration of which appears on a preceding page, was designed and superintended by the department of architecture.

CHEMICAL LABORATORY.

As shown on the opposite page, this is a two-story structure, 40x60 feet, with a rear projection, 35x60 feet, of one story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings, and terra cotta ornamentation.

The main laboratory will accomodate sixty students and contains improved working tables, with water, gas, and every necessary appliance for chemical work. The laboratory for advanced work in chemistry will accomodate thirty students, and is equipped in the same manner. Adjoining this are two rooms which are used respectively as a balance room, and a room for work with spectroscope, polariscope, etc. The second story contains a lecture room with seats and tables for one hundred and twenty students. Around the lecture room are cases containing crude and manufactured products, illustrating agricultural and mechanical chemistry, prominent subjects taught in the institution.

In the basement are ample accommodations for assaying and storage.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building, containing rooms for pharmacy and drawing.

The chemical laboratory for the agricultural experiment station occupies a building 60x26 feet, and is appropriated exclusively for chemical investigation and research.

SMITH HALL.

The Otis D. Smith Dining Hall, constructed of stone and pressed brick, is two stories in height, and one hundred and forty feet in length. It will accommodate three hundred in the dining hall, and forty in the dormitory above. The style is semi-colonial, and is quite attractive.

CARNEGIE LIBRARY.

The library building is a handsome structure of classical outline monumental in its general effect. It is presented in an accompanying cut.

AGRICULTURAL BUILDING.

A handsome and commodious building has been erected for the departments of (1) agriculture, (2) horticulture, (3) botany, (4) entomology, and (5) animal industry, together with a separate set of buildings for practical work in each of these departments. It is the general opinion that there is no superior, if equal, group of buildings for agricultural purposes in the South. The building is three stories in height and is constructed of pressed brick with stone trimmings.

GRADUATES

CLASS OF 1911

HONORS

Members of the Senior Class who attain distinction with a grade of 95 per cent. are Graduates with Highest Honor. Those who attain a distinction with a grade of 90 per cent. and less than 95, are Graduates with Honor. Those who attain less than 90 per cent. and more than 60 per cent. are Graduates.

DEGREES.

BACHELOR OF SCIENCE.

GRADUATES.

William Wrenshall Alexander	Missouri
Riley Gilbert Arnold	Marion
Miles Augustus Askew	Marengo
Harvey Chester Bates	Bullock
William Turnly Bates	Jefferson
William Corrie Bibb	Dallas
James Thornton Bidgood	Mobile
James William Bivins, Jr.	Georgia
Leonard Maurice Blumenfeld	Lee
William Smith Bonner	Clay
William Wray Boyd	Lee
James Ray Brooks	Montgomery
Henry Carl Buchan	North Carolina
Hancel William Caldwell	Lee
Milton Marion Cardwell	Marshall
John James Cater, Jr.	Georgia
Eugene Leon Caton	Covington
Otis Gilmer Clements	Lee
Dabney Otis Collins	Hale
John Willoughby Crane	Jefferson
Hal Stephens Dumas	Georgia
Samuel Worth DuPuy	Jefferson
Milner Hubbard Eskew	Dallas
Cedric Errol Faber	Georgia
John Poston Figh	Montgomery
Benjamin Beall Fontaine	Marshall
Luther Dillard Fuller	Montgomery
Thurston Dupuis Futch	Florida

Alton Gissendanner	Dale
Gilbert Graffenried Glover	Jefferson
Jesse Cleveland Good	Blount
Robert Knox Greene	Jefferson
William Davis Hall	Georgia
Arthur Finley Harper	Jefferson
Evans Harrell	Lee
William Reese Harvey	Bibb
Albert Adkins Hedge	Mobile
James Lane Henderson	Jefferson
Staton Silvian Hertz	Montgomery
Gordon Hicks	Tallapoosa
William Felix Hodges	Marion
Edgar Allen Hodson	Limestone
Alonzo Barber Hooper	Marshall
Waldo Brashear Hooper	Marshall
Sidney Sibley Jerdan	Franklin
John Stanley Jervis	Morgan
Harry McCrorie Johnstone	Jefferson
Christian Bower Ketcham	Texas
Grafton Lothrop	Texas
Edgar Wood Lumpkin	Marshall
Alexander Aubrey Lyons	Montgomery
Robert James Malone	Jefferson
Thomas Burton Meadows	Cullman
Charles Moore	Bibb
Lawrence Stern Morgan	Jefferson
Jemison Mims Moseley	Dallas
John Robert McCaghren	Jefferson
Howard Clifford McGregor	Jefferson
William Alonzo McIntosh	Tallapoosa
Clarence Thomas Nichols	Madison
Hugh O'Brien	Montgomery
Frank Ordway	Tennessee
Jack Lawrence Orr	Jefferson
William Malcolm Orum	Montgomery
Edmund Fay Pearce	Autauga
John Haigler Phillips	Elmore
Saxon Pace Poyner	Dale
Van F. Pruitt	South Carolina
Edmund Urquhart Ragland	Montgomery
Alfred Paul Ransom	South Carolina
Frank Ross	Lee
Mary Jane Ross	Lee

Asa Herman Skinner	Marengo
Percy McCall Smith	Jefferson
Orion Patrick South	Blount
Richard Anderson Stratford	Russell
Homer Bernard Tisdale	Conecuh
Benjamin Mills Washburn	Montgomery
William Overton Winston	Sumter
Benjamin Allen Wooten	Marengo
Robert Byrd Wright	Georgia
Thomas Parks Wright	Jefferson

GRADUATES WITH HONOR

Cyril Macaulay Brennan	Georgia
Walker Edward Bryan	Marshall
Robert Waddell Chapman	Montgomery
John Eayres Davis	Mobile
Lewis Pritchett Fort	Dallas
Thomas Morris Francis	Calhoun
L. Llewellyn Glover	Jefferson
Thomas Jasper Miles	Montgomery
Albert Burton Moore	Fayette
Frank Lawrence Owsley	Elmore
Mac Trotter Robertson	Georgia
Frederick Stewart	Bibb

IN PHARMACY (PH. G.)

GRADUATES

Ellis Hewitt Edwards	Walker
Erle Mortimer Hall	Lee
James Louis Hughes	Jefferson
William Lucius Lamar, Jr.	Macon
Walter Claude Michael	Marengo
Benjamin Franklin Moseley	Clarke
Lucy Richards	Lee
David Harmon Thweatt	Tallapoosa
Morrell Stanley Warren	Tallapoosa
Grady Webb	Lee

IN VETERINARY MEDICINE (D. V. M.)

GRADUATES

Sanford Nathan Bradshaw	Jefferson
James Houston Breazeale	Lee
Gus M. Hall	Baldwin
William Madison Hobdy	Lee

George Washington Lewallen	Jackson
Benjamin Homer Moon	Clay
Robert Bascom Nixon	Sumter
Oscar Watson Payne	Calhoun
Guy Julius Phelps	Montgomery
John Thomas Prickett	Talladega
James Cleveland Webb	Calhoun
Wilton Wendell Webb	Lee
Fortescue Bryan Whitfield	Marengo

GRADUATE WITH HONOR

Bennett Thomas Simms	Sumter

POST-GRADUATE DEGREES

MASTER OF SCIENCE

John Edward Walker	Tallapoosa

MASTER OF SCIENCE IN ARCHITECTURE

Talmage Coates Hughes	Etowah
William Riddle Ward, Jr.	Greene

MECHANICAL ENGINEER

John Hudson Keyes	Limestone
Howard Kennedy Porter	Georgia

ELECTRICAL ENGINEER

Leonard Graham Gresham	Minnesota
Dennis Markette Moore	Georgia

CIVIL ENGINEER

Alto Lee Byrd	Lee
Arthur Sanford Noble	Elmore

DISTINGUISHED STUDENTS

SESSION 1910-'11.

Students who receive a grade of above 90 per cent. and less than 95 in three studies in the Freshman Class, in four in the Sophomore Class, in five in the Junior, and in six in the Senior, are distinguished for excellence in scholarship, and are awarded Certificates of Distinction. Those who receive a grade above 95 per cent. are awarded Certificates of Highest Distinction.

FRESHMAN CLASS

DISTINCTION

Marion Augustus Baldwin	Bullock
Benjamin Paul Blasingame	Lee
William Taylor Cheney	Marengo
Harry Price Dixey	Louisiana
Enoch Dortch Fly	Jefferson
Cecil Stewart Grimes	Georgia
Robert Lawrence Groover	Georgia
Joseph John Haralson	Lee
Charles Levi Hollingsworth	Talladega
Lester Lewis	Bibb
Robert Holloway Martin	Conecuh
Paul Minnis	Talladega
Porter Mixon	Houston
Milton Sanders Park	Pike
William Burley Tisdale	Florida
Walter Herrin Wilson	Lee

HIGHEST DISTINCTION

DeKalb Pierce	Barbour
Wendell Holmes Tisdale	Florida

SOPHOMORE CLASS

DISTINCTION

John Wood Alexander	Louisiana
Harris Mitchell Baker	Georgia
Claude Everett Edmiston	Florida
Calder Willingham Finney	Georgia

Henry Grady Floyd	Lee
Emery Elgin Fry	Texas
Robert Franklin Harrison	Madison
Daniel Frank Hixon	Bullock
Chalmers Duke Horne	Florida
Joseph Edwin Lacey	Jefferson
Charles Benton Moore	Perry
Jefferson McCord	Coosa
Samuel Lucas McDowell	Wilcox
Boyd Shaver	Montgomery
Henry Turner Spence	Georgia
John Penn Tomberlin	Florida
Homer Johnson Urquhart	Jefferson
Adiel Ernest Ware	Georgia
Claud Wright Watson	Wilcox
John Howard Wills	Lee

HIGHEST DISTINCTION

Aldo Francisco Castagnoli	Bibb
Hugh Carey Hanlin	Colbert
Henry Harmon Heine	Talladega
Rupert Alonzo McGinty	Jefferson
George Vaughn Stelzenmuller	Baldwin
Derwood Lee Taylor	Lee

VETERINARY STUDENTS

DISTINCTION

Dillard Orsing Browning	Lee
George Washington Lewallen	Jackson

SPECIAL STUDENTS

DISTINCTION

Homer Walter Jones	Jefferson
Richard Alexander Polglaze	Tuscaloosa

JUNIOR CLASS

DISTINCTION

Alfred Proctor Aldrich, Jr.	South Carolina
James Walter Lee Benson	Mobile
Henry Erwin Brengle	Florida
Frank Richard Curtis	Lee
Nolan Lewis Dudley, Jr.	Georgia
John Frederick Duggar, Jr.	Lee

Henry Wiley Grady	Chambers
Felix Lloyd Jenkins	Georgia
Ernesto Felix Lopez	Mexico
Arthur Bernhardt Newman	Madison
Willis Belmont Nickerson	Tallapoosa
Chester A. Smith	Michigan
Thomas Holmes Whitfield	Marengo
George Taylor Wyche	Montgomery

HIGHEST DISTINCTION

Walker Anderson	Florida
Joseph Calloway, Jr.	Montgomery
Samuel Ridgely Cruse	Madison
Frances Camp Duggar	Lee
Velma DeForest Hartley	Blount
John Emmet Pitts	Russell
Charles Coleman Thach, Jr.	Lee

CATALOGUE OF STUDENTS

SESSION 1911-12

GRADUATE STUDENTS

Samuel Adler	Calhoun
Riley Gilbert Arnold	Marion
Miles Augustus Askew	Marengo
James William Bivins, Jr.	Georgia
Leonard Maurice Blumenfeld	Lee
William Smith Bonner	Clay
Cyril Macaulay Brennan	Georgia
Hancel William Caldwell	Lee
Edward Tarleton Collier	Lee
Dabney Otis Collins	Hale
John Eayres Davis	Mobile
Milner Hubbard Eskew	Dallas
Cedric Errol Faber	Georgia
James Lane Henderson	Jefferson
Edgar Allen Hodson	Limestone
Robert James Malone	Jefferson
Thomas Jasper Miles	Montgomery
Albert Burton Moore	Fayette
Jemison Mims Moseley, Jr.	Dallas
John Robert McCaghren	Jefferson
Frank Lawrence Owsley	Elmore
Parker Preston Powell	Choctaw
Leslie Warren Shook	Lee
Frederick Stewart	Bibb
Wilton Wendell Webb	Lee
Benjamin Allen Wooten, Jr.	Marengo

SENIOR CLASS

Alfred Proctor Aldrich, Jr.	South Carolina
Burton Gray Allen	Perry
Edward Shall Allen	Jefferson
Walker Anderson, Jr.	Florida
Clarence Pax Andrew	Georgia
Malcolm Marion Argo	Macon
Preston Stoddard Avery	Florida

James William Lee Benson	Mobile
Bernard Deckard Boatright	Georgia
Dallas Sidney Boyd, Jr.	Lee
Arthur Dortch Bradfield	Georgia
Henry Irwin Brengle	Florida
George Allen Brewer	Tallapoosa
Henry Wells Brooks	Georgia
Roland Lee Brooks	Georgia
George Patrick Brown	Jefferson
Taylor George Burke	Montgomery
Fleming Cayce Burns	Lauderdale
Joseph Calloway, Jr.	Montgomery
Joseph Emerson Carter	Georgia
William Frederick Cobb	St. Clair
Charles William Crumly	Jefferson
Samuel Ridgely Cruse, Jr.	Madison
Franklin Richards Curtis	Arkansas
Sidney Shalar Daniell	Georgia
William Wilfred Davies	Jefferson
Edward Alonzo Dillard	Lee
Thomas Floyd Drew	Georgia
Hugh Joseph Dudley	Russell
Nolan Lewis Dudley, Jr.	Georgia
Frances Camp Duggar	Lee
John Frederick Duggar, Jr,	Lee
John Jennings Dunlap	North Carolina
Jessie Floyd	Lee
Joel Clarence Ford	Marion
Henry Wiley Grady	Chambers
Samuel Cheatham Harrell	Lee
John Emmett Harris	Wilcox
Velma DeForest Hartley	Blount
Felix Lloyd Jenkins	Georgia
John Michael Johnson	Elmore
Robert Austin Jones	Montgomery
George Alston Kellum	Shelby
Max Kessler	Georgia
Joseph Ketzky	Montgomery
Claude Eugene Kimball	Mobile
Pieter Koch	South Africa
John Russell Liddell	Wilcox
John Lemley Liles	Jefferson
Roy Miller Lilly	Lee

Ernesto Felix Lopez	Mexico
Earle Alexander Major	Jefferson
Ernest Devon Manning	Covington
Oleon Albert Miller	Jefferson
James Monroe Moore	Fayette
Frank George Mullen	Talladega
Malcolm Eugene Morgan	Jefferson
Thomas Bragg Myers	Texas
James Kirk Newell	Tallapoosa
Arthur Bernhart Newman	Madison
Willis Belmont Nickerson	Tallapoosa
Millard Fillmore Nixon	Marshall
Robert Hugh Pitard	Mobile
John Emmett Pitts	Russell
John Cunningham Postell, Jr.	Georgia
Alfred Wayne Reynolds	Barbour
James Benagh Richardson	Limestone
Raymond Grover Ridgely	Florida
Archibald Bradshaw Roberts	Barbour
David Clare Rumph	Georgia
Charles Edward Sauls	Georgia
Lewis Arthur Scarbrough	Georgia
Frank Paul Schone	Germany
Olin Herbert Sellers	Lee
Claude Winchester Shelverton	Georgia
Willie Lee Sims	Marshall
Chester A. Smith	Michigan
Hazen Eager Smith	Autauga
Harry Lester Smith	Mobile
Harrell Walton Smith	Jefferson
Roger Downs Smith	Jefferson
Ralph Hughes Spencer	Houston
Gordon Hall Steele	Lee
Charles Coleman Thach, Jr.	Lee
William Heber Thames	Lee
Charles Numa Thibaut	Louisiana
Otto Wilson Tidwell	Lee
George Rives Vaughan, Jr.	Mobile
John Walden	Georgia
John Caffey Watson	Wilcox
William Collins White	Dekalb
Thomas Holmes Whitfield	Marengo
Hugh Hardy Williamson	Lowndes
Paul Bernard Williamson	Montgomery

Edwin Percy Winters	Jefferson
Claude Rodolphus Wood	Marion
George Taylor Wyche	Montgomery
Charles Porter Wright	Lee

JUNIOR CLASS

Cecil Elmo Alexander	Autauga
Charles Jefferson Allen	Lee
Fritz Thompson Ambrose	Bibb
Lawrence Cary Amos	Conecuh
Sidney Russell Amos	Conecuh
Winston Paine Anderson	Jefferson
William Webster Bagley	Georgia
Harris Mitchell Baker	Georgia
William Dalton Barton	Walker
*Andrew Jackson Bethea	Marengo
*Joseph Robbins Bibb	Dallas
George Wallace Brice	North Carolina
Henry Maddox Brittain	Randolph
Lewis Lofton Brock	Sumter
Otto Brown	Choctaw
William Wallace Caldwell	Lee
George Lee Campbell, Jr.	Houston
Royden Wendell Carter	Limestone
Aldo Francisco Castagnoli	Bibb
Walter Payne Christian	Shelby
William Thomas Clearman	Lamar
William Harvey Cogswell, Jr.	South Carolina
Lloyd Denton Cole	Randolph
Eugene Cowart	Escambia
David Lee Cotton	Georgia
Francis Bernard Coyle	New York
Paul Mitchell Davenport	Georgia
Samuel Moore Dillard	Madison
Ernest Archibald Dixon	Mississippi
Robert Emmett Dixon	Sumter
Francis Earl Dunlap	Shelby
Claude Everett Edmiston	Florida
Lemuel Alvin Edmonson	Morgan
Wendell Holmes Ellenburg	Shelby
Jesse Eugene Emmons	New Mexico
Thomas Melville Erickson	Mobile
*Benjamin Ellsworth Evans	Lee
Lester Erastus Evans	Georgia

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*Not in full standing.

Millard Woodfin Fendley	Blount
Calder Willingham Finney	Georgia
Henry Grady Floyd	Lee
Luther Jerome Fowler	Marshall
Charles Walker Frederick	Marion
Thomas Hagan Frost	Limestone
Emery Elgin Fry	Texas
Oliver Ira Gaines	Jackson
Philip Benjamin Goldstein	Jefferson
*Homer Henry Gossett	Georgia
Young Charles Hall	Baldwin
Hugh Carey Hanlin	Colbert
Herbert Giles Hard	Jefferson
Robert Franklin Harrison	Madison
*Franklin Augustus Hart	Montgomery
Henry Harmon Heine	Talladega
Alexander Stanton Hill	Jackson
Daniel Frank Hixon	Bullock
Chalmers Duke Horne	Florida
Joel Hurt, Jr.	Georgia
Thomas Clarence Izard	Limestone
Arlandus Leon Jerdan	Franklin
Carl Tate Jones	Houston
Taylor Goodwyn Jones	Marengo
John Albert Key	Florida
Joseph Edwin Lacey	Jefferson
*Edmund Clark Leach	Tallapoosa
Robert Curry Lett	Greene
Isaiah Daniel Lewis	Bibb
Victor Wallace Lewis	Bibb
*Robert Hood Lister	Etowah
Oscar Emory Littleton	Montgomery
James Edwin Livingston	Macon
William David Lockhart	Dallas
Jonathan Bell Lovelace	Escambia
*James Jackson Lovelace	Escambia
John Ephriam Mathews	Georgia
*Thomas Rex Mathews	Talladega
Charles Benton Moore	Perry
*Harry Lee Moore	Georgia
*James Dolphin Moore, Jr.	Jefferson
Alexander Edwin Morrow	Shelby

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*Not in full standing.

Judson Eckford Moses	Marion
Emery Tyler Motley	Randolph
Clarence Malcom Murphy	Henry
Jefferson McCord	Coosa
Samuel Lucas McDowell	Wilcox
Edgar Peyton McEniry	Jefferson
Rupert Alonzo McGinty	Jefferson
James Alexander McLeod	Houston
William Albert McMurray	Franklin
*Terry McCall McPherson	Lee
Frederick Moss Nelson	Franklin
Duncan Nolan	Jefferson
Oliver Clark Owsley	Elmore
Dabney Palmer	Washington
John Palmer	Washington
John Burton Pennington	Lamar
Frederick Eugene Pickett	Bullock
Marvin Pipkin	Florida
Joseph Neil Poole	Butler
Benjamin Patrick Poyner, Jr.	Dale
Carl Edward Pritchett	Clarke
Irvin Talton Quinn	Marion
Harry Henderson Rabb	Escambia
Ralph Waldo Riddle	Jefferson
*Ransom Eugene Rutland	Chambers
Harry Crispe Sessions	Wilcox
Thomas Ledyard Sharpe, Jr.	Walker
Boyd Shaver	Montgomery
William Edward Shivers	Shelby
*Clarence Dudley Smalling	Georgia
Allen Percy Smith	Walker
Henry Grady Smith	Perry
William Elbert Snuggs	Randolph
John Gordon Sparkes	Jefferson
Henry Turner Spence	Georgia
Solomon Everett Stein	Limestone
George Vaughn Stelzenmuller	Baldwin
*Peter Melville Stewart	Jefferson
Hugh Platt Stith	Jefferson
Clifford Marvyn Stodghill	Randolph
Dee Grandville Sullins	Marion
Derwood Lee Taylor	Lee
Bronier Lastrappe Thibaut	Louisiana

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*Not in full standing.

John Penn Tomberlin	Florida
Homer Johnson Urquhart	Jefferson
Charles Curry Vaughn, Jr.	Lauderdale
Glen Conner Walker	Coosa
Mathew Reid Wallis	Chambers
Adiel Ernest Ware	Georgia
Claude Wright Watson	Wilcox
William Eugene Watson	South Carolina
James Sebastian Watts	Walker
John Howard Wills	Lee
Thomas Garner Wingo	Jefferson
James Harper Worrill	Lee
John Benton Dundee Woodburn	Lee
Hugh Gardner Zeigler	Butler

SOPHOMORE CLASS

Ralph Milton Adams	Mobile
Ernest Clifton Adkins	Jefferson
Porter Weakley Allen	Jefferson
*Benjamin Hill Andrews	Chambers
William Edwin Arnold	Florida
Joseph Amos Aycock	Georgia
*Peyton Powell Baker, Jr.	Jefferson
Marion Augustus Baldwin	Bullock
Augustus Barnes	Lee
Andrew Hill Barnett	Bullock
Edwin Fry Barry	Texas
Jackson Frederick Bazemore	Coosa
Joseph Anderson Beasley	Jefferson
John Goodman Bethea	Conecuh
*Donald Pound Blake	Jefferson
Benjamin Paul Blasingame	Lee
Andrew Dunn Franklin Bloodworth	Georgia
*William Joseph Blumenthal	Louisiana
Milda Boulware	Randolph
Frank Ewell Boyd	Chambers
Rives Hood Boykin	Mobile
Hugh Marks Bray	Russell
George Lloyd Breeden, Jr.	Dallas
Carl Brindley	DeKalb
Bernard Lamar Brown	Mississippi
Peter DeMarkus Burks, Jr.	Dallas
James Reid Campbell, Jr.	Macon

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*Not in full standing.

Oscar Ervin Cannon	Arkansas
John Cantley, Jr.	Jefferson
Fletcher Franklin Carter	Shelby
*Elmer Rice Chambliss	Autauga
Frank Gregory Charlton	St. Clair
William Taylor Cheney	Marengo
Clarence Earl Chesnut	Cherokee
William Haywood Christopher, Jr.	Florida
Eason Thweatt Cook, Jr.	Montgomery
Charles Hadley Cooper	Georgia
James Joshua Couch	Houston
Morris Henry Crane	Jefferson
Marcus Williams Crenshaw	Limestone
Joseph Richard Crum	Wilcox
Charles Washington Culpepper	Randolph
John Marvin Davis	Jefferson
Martin McClendon Davis	Georgia
Frank Richard Deakins	Tennessee
Robert Dearing	Franklin
Robert Dennis	Pike
Harry Price Dixey	Louisiana
Grady Lee Dabbs	Jefferson
John Clinton Donehoo	Blount
*Render Ware Dowdell	Chambers
Margaret Louise Duggar	Lee
Fletcher Moore Ellis	Bullock
John Jefferson Emmons	New Mexico
*Eugene Cummins Ewing	Etowah
Herbert Houston Farr	Jefferson
Henry Roy Faucett	Bibb
Arthur Trezevant Feaster, Jr.	Jefferson
William Wescott Fetner	Georgia
Francis Asbury Flowers	Houston
Enoch Dortch Fly	Jefferson
Arthur Foster	Cleburne
John Wilbur Freeman	Chambers
William Aaron Garner	Cherokee
Edward Lawrence Gilder	Montgomery
*John Sharp Gillespy, Jr.	Jefferson
Hugh Campbell Going	Jefferson
Augustus Tompkins Graydon	South Carolina
*Rinaldo McKeene Greene	Lee
Cecil Stewart Grimes	Georgia

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*Not in full standing.

Robert Lawrence Groover	Georgia
Edward Collier Hagan	Texas
Frederick Cecil Hallmark	Jefferson
Howard Hilt Hammett	Chambers
Gustave Adolph Hanson	Florida
Joe John Haralson	Lee
Louis Clement Harris	Wilcox
Arthur Rogers Hayley, Jr.	Marengo
John Addison Hayley, Jr.	Marengo
John Jesse Heard	Florida
Nolan Helms	Butler
Robert Edward Herring	Tennessee
Robert Carl Hill	Sumter
Charles Levi Hollingsworth	Talladega
*John Randolph Horton	Pickens
David Stuart Hotchkiss	Lawrence
W. Howard Hudson	Clay
Archelaus G. Johnson	Clarke
Percy Lee Jones	Lauderdale
Henry Grady Kelly	Walker
Marvin Henry Killingsworth	Shelby
Richard Hallonquist LaRoche	Florida
John Wesley Lawler, Jr.	Lee
Carlton Anderson Lee	Georgia
James Coleman Lee	Jefferson
John Rush Lester	Georgia
Lester Hickman Lewis	Bibb
Eugene Mason Lindsey	Georgia
William Charles Louisell	Mobile
Basil Manley Lovelace	Escambia
Samuel Strudwick McCants	Marengo
*James Henry McCary, Jr.	Jefferson
Joseph Herkimer McCombs	Lee
*William Frank McDaniel	Houston
Gayle McFadden	Florida
Charles Bartley Martin	Jefferson
Herbert Marshall Martin	Florida
*John Thomas Martin	Calhoun
Robert Holloway Martin	Escambia
Homer Hosea Ballou Mask	Lee
Hugh Lester Mayers	Lamar
Manley Foster Meador	Marengo
Bert Meadows	Lee

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*Not in full standing.

Ivan Wilfred Miller	Walker
Paul Minnis	Mobile
Porter Mixon	Houston
Charles David Moon	Coosa
Thomas Mighell Moore	Mobile
Lorenzo Daniel Morgan	Dallas
George Lewis Moulton	Mobile
Leonidas Poyntz Munger	Jefferson
Robert Walker Murray	Georgia
Roland Hall Neel	Georgia
Wayne Brasher Nelson	Walker
Andrew Jackson Noble	Elmore
Charles Stott Noble	Calhoun
Thomas Winfrey Oliver, Jr.	Montgomery
Dorsey Nolen Owens	Clay
John William Pace, Jr.	Lee
James Clayton Parker	Florida
Loomis Gay Pearson	Randolph
Millard Hosmer Pearson	Randolph
Thomas Candler Perry	Russell
Powel Miree Pierson	Perry
Donald Rant Pill	Jefferson
Orville Pope	Marion
James Colbert Price, Jr.	Mississippi
McClellan Ratchford	Chambers
Bertram Eulo Reed	Autauga
Insco Elem Remington	Washington
Arthur Bordears Robertson	Barbour
Hamilton Manoah Robertson	Tennessee
Thomas Orlando Robertson	Georgia
Henry William Robinson	Covington
Frederick Schweikert Rogers	Marengo
Frank Park Samford	Montgomery
John Sanders, Jr.	Monroe
Olan Henry Sanders	Georgia
Anthony Sayre	Montgomery
Otto Seyforth	Madison
Murrell Edward Shields	Mobile
Winfield Woolf Skinner	Lee
Cecil Howard Smith	Jefferson
Charles McLemore Smith	Lowndes
Thomas James Stephenson	Dallas
Walker Edward Stevens	Macon
Chester Stewart	Fayette

Harry Humphrey Stirling	Jefferson
Charter Howard Taylor	Macon
Annie Terrell	Lee
Arthur Joel Thigpen	Lee
William Burley Tisdale	Florida
Wendell Holmes Tisdale	Florida
James Henry Thigpen	Lowndes
Henry Asa Vaughan	Marengo
Madison Arnold Veazey	Chambers
George Sidney Waits	Covington
James Clyde Walker	Tallapoosa
Oliver McRae Watson	Jefferson
James Arrington Webb	Jefferson
Frederick William Wendt	Montgomery
Joseph Madison White	Montgomery
Lawrence White	Hale
Robert Sidney Whitfield	Hale
Edgar Eldred Williams	Elmore
John Winfield Williams, Jr.	Lee
John Lee Williamson	Clarke
Benjamin Lawton Willingham	Georgia
Frank Whitaker Wilmore	Lee
Walter Herren Wilson	Lee
Frank Axson Winn, Jr.	Florida

FRESHMAN CLASS.

*Robert Lee Adams, Jr.	Lee
*Eugene Vernon Alford	Mobile
Edward Amende Allen	Jefferson
Jewel Lyon Allgood	Florida
Robert Emerson Bailey	Calhoun
*George Green Baker	Jefferson
*Hammond Dudley Baker	Lee
McTyeire Knight Batson	Jefferson
Carl Lee Beall	Crenshaw
George Beggs	Etowah
William Clinton Bellenger, Jr	Etowah
Paul Rubens Bidez	Georgia
Albert Bonds	Greene
Gerson Wallace Bonner	Randolph
Leon J. Bonner	Clay
William Box	St. Clair
Matthew Andrew Boykin	Mobile

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*Not in full standing.

Edward Simpson Brannon	Jefferson
James Terrell Brazelton	Jefferson
Samuel Bragg Brewer	Tallapoosa
Guy Brindley	DeKalb
William Hayden Brooks	Jefferson
Pressley Bryant	Wilcox
John Frederick Busey	Lee
William Benjamin Calhoun	Georgia
Elmer Edmon Cargill	Barbour
Clarence Grove Carr	Lowndes
William Alphonso Chapman	Coosa
Arthur Allen Chidsey	Mississippi
Edwin Early Clements	Lee
Otis Roberts Clements	Limestone
*Robert Theodore Corry	Butler
Wilmore Pearson Cox	Jefferson
Joseph Alpha Cullars	Lee
William Velpeau Curtis	Bibb
Edward Hale Dickenson	Florida
Ike Delony Dillard	Madison
Louis Frazier Ebersole	Jefferson
Mortimer Alfred Ehrlich	Georgia
William Robert Ellett	Madison
Hillary Herbert Elliott	Shelby
*Clem Cleveland Faulk	Geneva
Odie Clyde Gaines	Autauga
*James Shields Gaskell	Autauga
Charles Merritt Gibson	Dekalb
Daniel DeKalb Gibson	Clay
Charles Hereford Gilmour	Jefferson
Travis Branch Gissendanner	Dale
*Hunter Grant	Barbour
John Louis Green	Dallas
Leon Charles Gruver	Montgomery
Alfred Lee Harrell, Jr.	Chambers
*Festus Urban Harris	Jefferson
*Shirley Winfred Harris	Jefferson
Crawford Buchanan Hawkins	Mississippi
*Robert Pugh Haynes	Lowndes
Frederick Hollis Haynie	Lee
*Clem Henderson	Coffee
Charles LaFayette Hilliard	Pike
*Marion Elias Hogan	Jefferson

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*Not in full standing.

Frederick Hardy Holcomb	Shelby
Charles Burton Hollis, Jr.	Georgia
William Benjamin Horton	Georgia
John Littleton Howard	Jefferson
Robert Maull Howe	Lee
Albert Gorman Hudson	Shelby
Stephen Proctor Huger	Calhoun
Glanton Ward Huguley	Georgia
George Douglass Ingram	Lee
Thaddeuss Henry Ingram, Jr.	Lee
Clarke Upham Irvine	Mobile
Thomas McDonald Jones	Coosa
Weaver Milton Jordan	Lowndes
John Walter Judd, Jr.	Tennessee
John Simmons Kearley	Monroe
John Moses Keith	Lee
William Lewis Kellum	Shelby
Harry Center Kendall, Jr.	Georgia
*Joseph Leon Kennedy	Walker
Roscoe Dean Kershaw	Talladega
Mitchell Tulane Kidd	Calhoun
George Gelzer Lang	Georgia
Frederick John Law	Coffee
Robert William Lawton	Florida
Everette Lay	Etowah
Felix Bledsoe Leftwich	Colbert
George Vernon Long	Jefferson
*Joseph Elmore McAdory	Jefferson
John George McClellan	Walker
Stewart William McCombs	Lee
John McCrory	Butler
Russ Wilbur McDuffie	Geneva
William Duncan Maclay	Mississippi
Homer Angelo MacRae	Georgia
Samuel Marshall Major	South Carolina
*John Bryant Middleton	Franklin
Leslie Albert Miller	Walker
James Dillon Moore	Lee
John William Moore	Elmore
Maurice Lyndall Moore	Jefferson
Charles Fletcher Moreland	Georgia
Eldon Moyers	Georgia
James William Mullin	Georgia

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*Not in full standing.

Olin Fendley Nelson	Walker
James McCoy Oliver	Tallapoosa
John Boyd Overstreet	Kentucky
Edgar Eugene Owen	Tallapoosa
George Washington Owen, Jr.	Florida
Emmett Oates Parrish	Barbour
Leonard Graham Pearce	Autauga
Boyd Miles Philips	Etowah
Robert Hill Pinkston	Montgomery
Francis Carter Plaster	Montgomery
Myrt Pouncey	Escambia
Charles Glenn Powell	Georgia
Nelson Wilmer Proctor, Jr.	Jefferson
Willis Kelly Ransom	Jefferson
Leon McTyere Rattray	Cherokee
Charles Hinton Remington	Georgia
Edward Harper Reynolds	Dallas
William Gregg Robins	Wilcox
J Courtney Robbins	Jefferson
William Wesley Rogers	Georgia
William Glenn Rushing	Escambia
Thomas Claiborne Schley	Mobile
John Wendolin Seibold	Marshall
William Simpson Seibold	Marshall
William Grover Shamblin	Tuscaloosa
Thomas William Shrader	Shelby
Frank Asa Sikes	Crenshaw
John Asa Simms	Sumter
William Howard Slaughter	Wilcox
Fenton Reid Smith	Marengo
*Gordon Smith	St. Clair
John Glenn Stanley	Butler
Joseph Wheeler Starkey	Colbert
Frederick Hillmond Steele	Lee
Charles Jefferson Stewart	Bibb
Henry Lee Stewart	Jefferson
William Alfred Swann	Georgia
Samuel Fuller Teague, Jr.	Jefferson
Robert Soule Tew	Mobile
*Charles Thigpen	Lowndes
Benjamin Franklin Thomas	Lee
James William Thompson	Jefferson
Luther Graham Thornhill	Elmore

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*Not in full standing.

Forest Holt Truitt	Georgia
Furman Leffell Tucker	South Carolina
Arthur Peace Turner	Colbert
Homer Heard Turner	Colbert
Paul Charles Turner	Georgia
Gordon Clopton Ussery	Randolph
Ira Davis Vail	Greene
*Victor Herbert Vandiver	Cullman
George Glenn Vickers	Clay
Robertson Wilkins	Georgia
Preston Olan Witt	Cherokee
Harry Darron Wood	Mobile
Milton LeGrand Wood, Jr.	Montgomery
*Walter Bacheldor Wood, Jr	Chambers
*Oliver Eubert Young	Choctaw

SPECIAL AND IRREGULAR STUDENTS

Charles Wright Adams	Bullock
Thomas Clifton Almon	Morgan
Samuel Faucett Anders	Tuscaloosa
James Walter Anderson	Hale
Virgil Pettus Atkinson	Limestone
Ernest Roland Baldwin	Jefferson
James Edward Bazemore	Coosa
Theodore Russell Benning	Georgia
Robert Fernand Angelo Benson	Mobile
John Oliver Briggs Bentley	Talladega
Russell Lee Beutell	Georgia
Leon Augustus Boyd, Jr.	Coffee
Hervey Abner Brown	Montgomery
William Elliott Brush, Jr.	Jefferson
Erle Emanuel Bryant	Wilcox
William Ausphera Bryant	Baldwin
Charles Henry Bryars	Baldwin
William Brasher Carleton	Washington
Phoebe Cary	Lee
Charles Collins	Madison
Verneard Compton	Marengo
William Compton	Marengo
Eula Jeanette Crawford	Coosa
Arthur Lyons Crowe	Georgia
Samuel Henry Dailey, Jr.	Monroe
George Lawrence David	Sumter

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*Not in full standing.

William French Deaderick	Walker
Walter Scott Desprez	Lauderdale
Robert Means Dubose, Jr.	Tennessee
Joseph Robert Duncan	Florida
Harvey Kyle Elliot	Etowah
Walter Carroll Ellis	Georgia
Thorwald Eros	Calhoun
Henry Grady Ezell	Lee
Max Folmar	Pike
Franklin Lloyd Gaddis	Elmore
Isaac Grady Gauntt	Tallapoosa
John Wallace Gauntt	Tallapoosa
Walter Winn Gayle	Montgomery
Russell Pinson Gilbert	Sumter
Arthur Emory Gregory	Georgia
Victor Nicholson Hall	DeKalb
Fernwood Ham	Russell
Jefferson Merritt Hamilton	Montgomery
John Isaac Handley	Clay
George Morton Hawk	Marengo
Harvey Curtis Heath	Coffee
William Amelius Hewes	Jefferson
Fenner Burwell Hill, Jr.	Jefferson
Walter Roy Hoffman	Lee
Robert Edward Holland	Houston
William Ernest Hollingsworth	Talladega
William Charles Jackson	Monroe
Frank James Inge, Jr.	Greene
Benjamin Franklin Jones	Wilcox
Daniel Thomas Jones	Jefferson
Homer Walter Jones	Jefferson
LeRoy King Jones, Jr.	Marengo
Richard Griffin Key	Florida
William Henry Lanford, Jr	Arkansas
Alwyn Leo Lewis	Jefferson
Harold Lewis	Jefferson
Albert Wilson Lloyd	Georgia
Frank Wayne Lockwood	Montgomery
Robert Caswell Maples	Jackson
William Broaddus Massey	Jefferson
Francis Fuller Merriam	Georgia
David Hamilton Middleton	Lowndes
Victor Friedman Mitchell	Tuscaloosa
Donald Nelson Murdock	Jefferson

Earle Nettles	Monroe
Joseph Locke Nettles	Mobile
Peyton Norvell, Jr.	Jefferson
Leonidas Keller Ogletree	Talladega
Lucian Key Palmer	Jefferson
William Ware Palmer	Lee
McDonald Pearson	Talladega
Dana Bernett Perdue	Coffee
Frederick Daniel Perkins	Coosa
Abner Perrin	Dallas
Richard Alexander Polglaze	Tuscaloosa
Alfred Williams Porter	Jefferson
Jerome Price	Marengo
William Phillip Pritchett	Bullock
Sarah Coleman Randle	Georgia
Amzi Godden Rankin	Perry
Robert Anderson Riddle	Jefferson
Gano Winter Robertson	Louisiana
Chester W. Rogers	Washington
Wiley Scott Russell	Lee
Luther Uriah Simpson	Walker
Albert Fay Smith	Autauga
Espy Wyvil Smith	Houston
Flint Elmer Spradley	St. Clair
Ernest Henry Standifer	Tuscaloosa
Thomas Willburn Taunton	Chambers
Ernest Chatterton Thomas	Lee
Henry Elias Thomas	Jefferson
Stephen Thomas, III.	South Carolina
Robert Cecil Todd	Montgomery
Charles Llewyellen Torbert	Chambers
Sanford Tuthill	Colbert
Augustus Ventress	Barbour
Nealey Andrew Waldrop	Jefferson
William Chambers Waller	Montgomery
Harry Billingsley Walton	Talladega
Eugene Judson Ward	Wilcox
Benjamin Hartwell Warren, Jr.	Clarke
Claude Morris Warren	Clarke
Wilbur Hilton Webb	Texas
Sidney Nelson Wellborn	Bullock
Walter John Whare	Jefferson
Fletcher Beck Williams, Jr.	Sumter
Riley Vance Wilson	Dallas

John Morgan Windham	Coffee
Robert Luther Wood	Lowndes
George Melvin Wooley	Chilton
Bessie Wright	Lee

DEPARTMENT OF PHARMACY.

FOUR-YEAR COURSE.

GRADUATES

Milner Hubbard Eskew	Dallas
Jemison Mims Moseley	Dallas

SENIOR CLASS.

Henry Wells Brooks	Georgia
Roland Lee Brooks	Georgia
Charles William Crumly	Jefferson
John Emmette Harris	Wilcox
James Kirk Newell	Tallapoosa
Marshall Charles Smith	Wilcox

JUNIOR CLASS.

Phillip Benjamin Goldstein	Jefferson
Emery Tyler Motley	Randolph
Terry McCall McPherson	Lee
Clifford Marvyn Stodghill	Randolph
John Benton Dundee Woodburn	Georgia

THREE-YEAR COURSE

THIRD YEAR.

William Lucius Lamar, Jr.	Macon

SECOND YEAR.

James Edward Barnes, Jr.	Dale
Herbert Clayton	Pike
Coleman Ferrell Driver	Lee
William Clyde Gilchrist	Crenshaw
Louis Howle	Calhoun
Jesse Josey	Covington
William Charles Malone, Jr.	Talladega
Paul Molyneaux	Baldwin
David Renwick Murray	Jefferson
James Herman Phillips	Walker
Frederick Leigh Plaxco	Franklin
Charles Stuart Stirling	Pickens
Clyde Quitman Tervin	Walker
Adolphus Evadnah Williams	Elmore

FIRST YEAR.

Samuel Gholson Adams	Marengo
David Grey Allen	Lee
Massey Palmer Bedsole	Clarke
John Mozell Blanton	Florida
Howard Milton Boyd	Lee
Elmer Bussey	Morgan
Thomas Jesse Busey, Jr.	Lee
Asa North Duncan	Colbert
William James Galloway	Colbert
Julius Lamar Greene	Macon
Charles Francis Grove	Mobile
John Henry Hanson	Taliapoosa
Hubert Verdo Humphries	Baldwin
Harry Lee Jackson	Marengo
John Henry Josey	Covington
Tracy Jerome Keeling	Etowah
Henry Landsberger, Jr.	Jefferson
John Macon Lawrence	Bullock
William Forest Little	Elmore
Francis Barton Lloyd	Wilcox
David Dell McCaskey	Wilcox
Frank Manley	Randolph
William Gray Moore	Lee
Hilary Hubert Moorer	Conecuh
William Tee Morgan	Butler
James Renfroe Nunnally	St. Clair
E. R. Phillips, Jr.	Dale
James Harvey Stacey	Monroe
Edward Boyd Sutton	Georgia
Keener Holley Trent	Randolph
John Gilbert Watkins	Fayette
Hiram White	Baldwin
Samuel Landrum Wood	Henry

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

THIRD YEAR.

Archibald Strickland Boyd	Sumter
Dilliard Orsen Browning	Montgomery
Berney Sumner Clay	Jefferson
Homer David Cogdell	Lee
James Madison Luke	Sumter
John Perry Major	South Carolina
Marion Elerson Meadows	Lee

Adolphus Moore	Perry
James Frederick Park	Limestone
Guy Maxey Parrish	Lee
William Waller Parrish	Lee
Malcolm James Rattray	Cherokee
Claud William Marcelline Ressijac	Mobile
William Lee Stroup	Morgan
Thomas Lee Wright	Lee

SECOND YEAR.

Louis Edgar Beckham	Hale
Daniel Cook	Lee
McElroy Dean	Tallapoosa
Samuel D. Haynie	Lee
Leon Ryan Kendrick	Dallas
Edgar Delon Miley	Dallas
Lamar Fontaine Pritchett	Clarke
Samuel Watson Sullivan	Lowndes

FIRST YEAR.

Francis Bartow Askew, Jr.	Marengo
Roe Ballou	Marengo
John Sidney Cook	Choctow
Walter Edward Eatman	Lee
Monroe Sublett Esslinger	Madison
James Karl Jones	Wilcox
Richard Irvin Kearley	Monroe
Benjamin Joseph Lamb	Greene
Walter Douglas McCormack	Jefferson
Arthur Storey Makin	Jefferson
Emanuel Brandon Mount	Montgomery
James Hubert Page	Geneva
Joseph Stevens Powell	Choctaw
Albert Prim, Jr.	Clarke
Claude Eugene Rushing	Montgomery
Walter Bivins Smith	Dallas
James Daniel Wilbanks	Tallapoosa

SUMMARY.

Graduate Students	26
Senior Class	98
Junior Class	137
Sophomore Class	181
Freshman Class	161
Special and Irregular Students	118
Pharmacy	61
Veterinary Medicine	40
	822
Deduct for names counted twice	12
Total	810

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	645	Geology	75
History	362	Civil Engineering	49
French	86	Structural Design	37
German	69	Electrical Engineering	93
Latin	134	Mechanical Engineering	101
Mental Science	11	Mining Engineering	11
Political Economy	87	Architecture	38
Mathematics	581	Machine Design	79
Chemical Laboratory	177	Drawing	245
Chemistry	384	Descriptive Geometry	107
Agriculture	282	Mechanic Arts	376
Animal Industry	302	Mineralogy	22
Physics	477	Physiology	178
Botany	196	Veterinary Science	96
Entomology	22	Pharmacy	76
Horticulture	51	Veterinary Medicine	49
Forestry	18	Military Department	693
Landscape Gardening	4	Surveying	183

RESIDENCE BY STATES.

Alabama	664
Georgia	77
Florida	26
South Carolina	8
Mississippi	6
Texas	6
Louisiana	5
Tennessee	5
Arkansas	3
New Mexico	2
North Carolina	2
Kentucky	1
Michigan	1
New York	1
Germany	1
Mexico	1
South Africa	1

MILITARY ORGANIZATION.

SESSION 1911-1912.

President,
CHARLES C. THACH.

Commandant,
COL. BENJAMIN S. PATRICK.

Surgeon,
J. H. DRAKE.

Bandmaster,
MAJOR A. L. THOMAS.

Regimental Staff,

Cadet Captain D. C. Rumph, Quartermaster.
Cadet Captain S. R. Cruse, Adjutant.
Cadet Lieutenant H. E. Smith, Commissary.

Regimental Non-Commissioned Staff.

Cadet Sergeant H. C. Hanlin, Sergeant Major.
Cadet Sergeant G. V. Stelzenmuller, Quartermaster Sergeant.
Cadet Sergeant E. E. Fry, Color Sergeant.
Cadet Sergeant W. W. Caldwell, Drum Major.

First Battalion.

Cadet Major, W. B. Nickerson.

Cadet Adjutant, G. P. Brown. Cadet Sergeant Major, R. A. McGinty.

Cadet Captains.

Company A.	Company B.	Company C.	Company D.
J. E. Pitts.	T. G. Burke.	H. W. Grady.	A. P. Aldrich.
Cadet First Lieutenants.			
M. M. Argo.	J. F. Duggar.	A. B. Roberts.	S. S. Daniell. F. C. Burns.
Cadet Second Lieutenants.			
G. T. Wyche.	R. G. Ridgely.	W. C. White.	J. M. Johnson.
Cadet First Sergeants.			
P. M. Davenport.	C. E. Edmiston.	D. L. Taylor.	J. H. Wills.
Cadet Sergeants.			
J. P. Tomberlin, A. L. Jerdan, H. G. Smith.	H. C. Sessions, C. W. Finney, T. M. McPherson, J. McCord.	R. W. Carter, H. M. Baker, W. E. Shivers.	M. Pipkin, J. D. Moore, H. H. Gossett.
Cadet Corporals.			
W. H. Wilson, R. E. Herring, C. L. Hollingsworth, F. W. Wilmore, J. J. Couch, O. Seyforth.	H. P. Dixey, C. S. Noble, E. F. Barry, E. L. Gilder.	W. B. Tisdale, M. A. Baldwin, A. J. Noble, F. P. Samford, E. D. Fly, A. Barnes.	W. H. Tisdale, E. E. Williams, E. C. Hagan, F. C. Hallmark, L. H. Lewis.

Second Battalion.

Cadet Major, C. C. Thach, Jr.

Cadet Adjutant, R. D. Smith. Cadet Sergeant Major, C. B. Moore.

Cadet Captains.

Company E.	Company F.	Company G.	Company H.
C. P. Andrew.	C. E. Sauls.	F. R. Curtis.	J. B. Richardson.

Cadet First Lieutenants.

	N. L. Dudley,	T. H. Whitfield,	
J. C. Postell.	W. Anderson.	T. F. Drew.	

Cadet Second Lieutenants.

J. L. Liles.	J. K. Newell.	A. B. Newman.	F. L. Jenkins.

Cadet First Sergeants.

C. W. Watson.	J. E. Lacey.	B. Shaver.	H. G. Zeigler.

Cadet Sergeants.

S. L. McDowell,	A. E. Ware,	H. G. Floyd,	H. H. Heine,
R. C. Lett,	H. T. Spence,	C. D. Horne,	E. A. Dixon,
D. Palmer,	R. F. Harrison.	H. M. Brittain.	E. T. Motley,
T. L. Sharp.			J. E. Livingston.

Cadet Corporals.

H. R. Faucett,	M. F. Meador,	M. W. Crenshaw,	J. C. Lee,
G. A. Hanson,	M. H. Killingsworth	P. Minnis,	A. T. Graydon,
J. R. Lester,	W. E. Arnold,	R. W. Murray,	A. Sayre,
H. M. Bray,	P. Mixon,	F. M. Ellis.	M. E. Shields,
J. A. Webb,	J. W. Williams,		R. H. Neel,
C. D. Moon.	E. M. Lindsey.		R. L. Groover.

THE CADET BAND.

Session 1911-1912.

A. L. THOMAS, Bandmaster.

P. R. BIDEZ, Assistant.

Military Officers.

C. P. Wright	Cadet Lieutenant.
T. H. Frost	Cadet Sergeant.
W. W. Caldwell	Drum Major
H. M. Martin	Cadet Corporal
J. J. Haralson	Cadet Corporal

Musicians.

E. E. Cargill, Solo Cornet,
C. F. Driver, Solo Cornet,
T. H. Frost, First Cornet

P. R. Bidez, Solo Clarinet,
B. P. Blasingame, First Clarinet,
A. J. Bethea, Second Clarinet,
J. J. Haralson, Third Clarinet.
H. M. Martin, Piccolo.

S. E. Stein, Euphronian,
F. E. Dunlap, Trombone,
G. L. David, Trombone,
H. G. Hard, Tuba.

C. P. Wright, Alto Saxophone,
J. E. Barnes, First Alto.
C. D. Moon, Second Alto,
G. C. Ussery, Third Alto.

E. C. Thomas, Bass Drum.
W. B. Horton, Snare Drum
R. S. Tew, Snare Drum.

Bugle Corps.

J. L. HOWARD, Chief Trumpeter.

W. H. Christopher,
G. V. Long,
S. S. McCants.

G. L. Moulton,
R. H. Neel,
J. B. Woodburn.

Cadets of the graduating class who were reported to the Adjutant General, U. S. Army, for publication in the "Official Army Register" as having ranked highest in the Military Department:

1889
A. St. C. Dunstan,
B. H. Crenshaw,
A. J. Burr.

1890
F. D. Milstead,
J. W. Bivins,
G. W. Emory,

1891
L. E. Baker,
C. C. Johnson,
F. J. Bivins.

1892
H. F. Dobbin,
A. L. Jones,
C. L. Brown.

1893
Joel Dumas,
C. H. Smith,
J. F. Webb.

1894
C. S. Andrews,
P. P. McKeown,
R. L. Dorsey.

1895
S. L. Coleman,
H. H. Smith,
L. B. Gammon.
1896
A. L. Alexander,
W. L. Fleming,
W. M. Williams.
1897
P. G. Clark,
G. M. Holley,
G. N. Mitcham.
1898
A. H. Clark,
A. McB. Ransom,
John Haralson.
1899
I. F. McDonnell,
A. H. Feagin,
T. W. Wert.
1900
E. M. Mason,
H. P. Powell,
C. W. Nixon.
1901
A. F. Jackson,
J. D. Foy,
P. S. Haley.
1902
W. D. Willis,
J. E. D. Yonge,
J. B. Garber.
1903
H. E. Davis,
H. M. Yonge,
T. J. Dowdell.
1904
J. McDuffie,
B. L. Shi,
George Dunglinson, Jr.
1905
R. P. Boyd,
R. M. McCulloh, Jr.
J. H. Paterson.
1906
W. H. Foy,
F. H. Mohns,
M. A. Frazer.
1907
N. B. McLeod,
W. L. Perdue,
G. F. Lipscomb.
1908
S. A. Ellsberry,
C. M. Howard,
R. H. Liddell.
1909
J. W. Powell,
S. H. Richardson,
T. Beasley.
1910
D. M. Clements,
C. C. Yonge,
J. M. Spearman.
1911
J. E. Davis,
J. J. Cater,
G. Lothrop.

REQUIREMENTS FOR ADMISSION

All applicants for admission must present testimonials of good moral character, and those who come from other colleges must bring certificates of honorable discharge or furnish other testimonials of good moral character.

Students upon their arrival in Auburn should report promptly to the President. Candidates for admission are urged to be present on the opening day of the session. Admission at a later day is permitted, but is attended with greater or less inconvenience.

Entrance examinations will begin on Monday, September 2nd. These examinations will be required of all students entering college for the first time, except those who bring certificates from accredited high schools or preparatory schools or from reputable colleges or universities.

ADMISSION TO THE FRESHMAN CLASS.

To enter the freshman class the applicant must be not less than fifteen years of age.

For unconditional admission to any bachelor's course, or to the Veterinary College, a student will be required to present for the session of 1912-13 twelve entrance units, or the equivalent of three high school years.

Students who wish to enter the regular courses and are deficient in entrance requirements may enter and be classified as conditioned students, provided their deficiencies do not exceed three units.

For entrance to any of the special courses that do not lead to degrees, applicants must give evidence of satisfactory preparation for pursuing the work as outlined in the catalogue.

Of the twelve units required for admission in full standing to the freshman class, seven are prescribed as follows:

In Mathematics	3 units
In English	2½ units
In History	1½ units
Total prescribed	7 units

ENTRANCE SUBJECTS.

Credit for admission will be given for any high school subject properly taught.

The principal subjects in which units may be offered for entrance are as follows:

Algebra	1½ units
Advanced Arithmetic	½ unit
Plane Geometry	1 unit
Solid Geometry	½ unit
Trigonometry	½ unit
High School Grammar	½ unit
Rhetoric and Composition	1½ units
Literature	1½ units
Advanced U. S. History	1 unit
Ancient History	1 unit
Mediaeval and Modern History	1 unit
English History	1 unit
Pedagogy	½ unit
Psychology	½ unit
French	1 to 2 units
German	1 to 2 units
Spanish	1 to 2 units
Latin Grammar	1 unit
Cæsar	1 unit
Cicero	1 unit
Virgil	1 unit
Greek	1 to 2 units
Commercial Geography	½ unit
Physical Geography	1 unit
Agriculture	½ to 2 units
Zoology	½ to 1 unit
Physiology	½ to 1 unit
Biology	½ to 1 unit
Physics	½ to 1 unit
Chemistry	½ to 2 units
Botany	½ to 1 unit
Civil Government	½ to 1 unit
Shop Work	½ to 4 units
Mechanical Drawing	½ to 2 units
Freehand Drawing	½ to 1 unit
Music	½ to 3 units
Bookkeeping	½ to 1 unit
Stenography and Typewriting	½ to 1 unit
Domestic Science	½ to 2 units

SPECIAL OR IRREGULAR STUDENTS.

Those students who are not able to meet the regular entrance requirements may be admitted to special courses in agriculture, architecture, and engineering, and will be classified as special or irregular students provided they are seventeen years of age and are prepared to do satisfactory work in the subjects which they desire to take.

UNIT DEFINED.

A unit is defined as a high school or preparatory course of five periods of forty or forty-five minutes each weekly, throughout the academic year of nine months. In science courses, two laboratory periods are counted as the equivalent of one recitation period. Credits of less than one unit may be granted for courses that do not run full time.

ENTRANCE SUBJECTS WITH DEFINITIONS OF REQUIREMENTS.

MATHEMATICS.

1.	Advanced Arithmetic Equivalent of courses offered in the accredited secondary schools of Alabama.	½ unit
2.	(a) Algebra to Quadratics	1 unit
	(b) Quadratics, binomial theorem, progressions, etc. (equivalent of Wentworth's *Elmentary Algebra*)	½ unit
3.	Plane Geometry	1 unit
4.	Solid Geometry	½ unit
5.	Trigonometry	½ unit

ENGLISH.

1.	High School Grammar	½ unit
2.	Composition and Rhetoric	1½ units
3.	Literature	1½ units

Below will be found two lists of books on which entrance requirements in English for 1912-13 are based, one for careful study and practice in class, the other for general reading, largely out of class. Those included in the list for careful study, the student will be expected to know pretty thoroughly. This part of the examination will be upon subject matter, literary form, and logical structure; and, in addition, the candidate will be required to answer questions involving a fair knowledge of the leading facts in those periods of English literature to which the prescribed work belongs. Those works in the list for reading and practice, the student will not be expected to know minutely, but to have a general knowledge of their subject matter and the lives of their authors. The main object in this part of the examination is to test the candidate's ability to use good English.

1. For study and practice:

Shakespeare's *Macbeth;* Milton's *Lycidas, Comus, L'Allegro* and *Il Penseroso;* Burke's *Speech on Conciliation with America* or Washington's *Farewell Address* and Webster's *First Bunker Hill Oration;* Macaulay's *Life of Johnson* or Carlyle's *Essay on Burns.*

2. For reading and practice:

Group I (two to be selected). Shakespeare's *As You Like It, Henry V, Julius Caesar, The Merchant of Venice, Twelfth Night.*

Group II (one to be selected) Bacon's *Essays;* Bunyan's *Pilgrim's Progress, Part I*; the *Sir Roger de Coverly Papers* in the *Spectator;* Franklin's *Autobiography.*

Group III (one to be selected). Chaucer's *Prologue;* Spenser's *Fairie Queene* (selections); Pope's *The Rape of the Lock;* Goldsmith's *The Deserted Village;* Palgrave's *Golden Treasury* (*First Series*) *Books II and III,* with special attention to Dryden, Collins, Gray, Cowper, and Burns.

Group IV (two to be selected). Goldsmith's *The Vicar of Wakefield;* Scott's *Ivanhoe;* Scott's *Quentin Durward;* Hawthorne's *The House of Seven Gables;* Thackeray's *Henry Esmond;* Mrs. Gaskell's *Cranford;* Dickens's *A Tale of Two Cities;* George Eliot's *Silas Marner;* Blackmore's *Lorna Doone.*

Group V (two to be selected). Irving's *Sketch Book;* Lamb's *Essays of Elia;* De Quincey's *Joan of Arc,* and *The English Mail Coach;* Carlyle's *Heroes and Hero Worship;* Emerson's *Essays* (selected); Ruskin's *Sesame and Lilies.*

Group VI (two to be selected). Coleridge's *Ancient Mariner;* Scott's *Lady of the Lake;* Byron's *Mazeppa,* and *Prisoner of Chillon;* Palgrave's *Golden Treasury* (*First Series*), *Book IV;* Macaulay's *Lays of Ancient Rome;* Poe's *Poems;* Lowell's *Vision of Sir Launfal;* Arnold's *Sohrab and Rustum;* Longfellow's *Courtship of Miles Standish:* Tennyson's *Gareth and Lynette, Lancelot and Elaine,* and *The Passing of Arthur;* Browning' *Poems* (selected).

LATIN.

1.	Latin Grammar, easy composition and easy reading	1 unit
2.	Cæsar	1 unit
	Any four books of the *Gallic War.*	
3.	Cicero	1 unit
	Any six orations.	
4.	Virgil	1 unit
	The first six books of the *Æneid.*	

Equivalents in Nepos, Sallust, Ovid, and other Latin authors may be offered in place of the reading indicated above.

GREEK.

1.	Grammar and composition	1 unit
	The common forms, idioms, and construction, and the general grammatical principles of Attic Greek prose. Translation into Greek of detached sentences and into English of easy Greek narrative.	
1.	Xenophon	1 unit
	The first four books of the Anabasis.	

GERMAN.

Elementary German ....1 to 2 units

The examination will be suited to the proficiency of those who have had two years of German in a preparatory school, and will test (a) the candidate's knowledge of the rudiments of German grammar; (b) ability to read easy prose at sight, and (c) to translate simple English sentences into German. The candidate should have read two hundred pages of easy prose.

FRENCH.

Elementary French ....1 to 2 units

The examination will be suited to the proficiency of those who have had two years of French in a preparatory school, and will include (a) the translation at sight of ordinary nineteenth century prose; (b) the translation from English into French of sentences to test the candidate's familiarity with elementary grammar. The candidate should have read three hundred pages of simple prose.

SPANISH.

Elementary Spanish..............................1 to 2 units

The preparation in Spanish should follow the plan outlined for the work in French. The amount of reading prescribed should be about the same.

HISTORY.

1. Ancient History..1 unit

Greece and Rome should be emphasized. The completion of Myers' *Short History of Ancient Times*, or the equivalent.

2. Mediaeval and Modern History.........................1 unit

The completion of Myers' text or the equivalent.

3. History of England......................................1 unit

The completion of Montgomery's *English History* or the equivalent.

4. History of the United States............................1 unit

A credit of one unit is granted for a high school course requiring one year for completion.

CIVICS.

Civics..½ to 1 unit

A credit of one unit is granted for high school work in civics requiring one year for completion.

SCIENCE

1. Botany ---------- ½ to 1 unit

The preparation in botany should include anatomy and morphology; physiology; ecology; the natural history of the plant groups and classfication. Considerable time should be given to laboratory and field work, and records of the work be kept in notebooks.

2. Chemistry ---------- ½ to 2 units

The preparation in chemistry should include laboratory work, comprising at least 40 exercises; instruction by lecture and demonstration; and study of a standard text like Smith's *Essentials of Chemistry*. The laboratory note book should be kept.

3. Physics ---------- ½ to 1 unit

A year's work in physics should include the thorough study of a good text, like Higgin's *Physics*, supplemented by lectures and demonstrations, and by individual laboratory work comprising at least 40 exercises, the results of which should be kept in a note book.

4. Physical Geography ---------- ½ to 1 unit

The preparation should include at least one modern text-book as Maury-Symond's *Physical Geography*.

5. Commercial Geography ---------- ½ unit

A credit of ½ unit is granted for a high school course requiring at least one half year for completion.

6. Physiology ---------- 1 unit

Any good high school text.

7. Zoology ---------- ½ to 1 unit

One year's work following a good elementary text book, with at least forty hours of laboratory work and excursions.

8. Agriculture ---------- ½ to 2 units

For a credit of one unit the course should have been guided by some good text like Duggar's *Agriculture*, with practical demonstrations and experiments by the student in the school garden or on the farm. Practical experience on the farm will also be counted toward this credit, and where this practical experience has extended over two or more years it may be accepted as fulfilling the requirement without the textbook study. Additional credit for more advanced study.

9. Biology --- ½ to 1 unit

One full year's work following a good elementry textbook with at least forty hours of laboratory work and excursions covering the elements of botany and zoology. Note book with original drawings should be kept.

DRAWING.

Drawing --- ½ to 3 units

For a credit of one unit a full year's work in freehand or mechanical drawing, including geometrical plane and solid figures, simple pieces of machinery, and with a fair knowlege of the rules of perspective and light and shade sketching from casts, plants, and other objects. Additional credit will be granted for more advanced work.

PSYCHOLOGY AND PEDAGOGY.

Pyschology and Pedagogy ---------------------------- 1 unit

For credit in either of these subjects, a student must have studied at least a half year in a regular course based on some elementary text like Halleck's *Psychology* and White's *Theory and Practice of Teaching.*

SHOPWORK

1. Woodwork --- 1 unit

One full year's work of not less than six hours per week in woodworking, including bench work, joining, turning, and construction of useful objects.

2. Forge, Foundry, and machine work -------------- ½ to 3 units

Proficient training in these subjects will be credited according to the time they are systematically followed, three hours of laboratory instruction being counted as one hour of recitation. The student should be familiar with the usual shopwork process and methods of work, and the properties of the materials commonly used in construction.

MUSIC

1. Musical Appreciation ------------------------------- 1 unit

A general knowledge of the principal musical forms—song, classic dance, fugue, sonata (all movements), and symphony—and of their historical development; and acquaintance with the lives of the great composers and with their compositions. A reasonable familiarity with the more commonly heard works of the best composers, as Bach, Handel, Haydn, Mozart, Beethoven, Weber, Schubert, Mendelssohn, Chopin, Schumann, Wagner, etc.

2. Harmony ....1 unit

The ability to harmonize a single soprano of not fewer than eight measures in four vocal parts, involving, in major or minor modes, diatonic chords of the seventh and modulation, transient or complete, to next-related keys; the ability to analyze (by indicating the keys, the chords, and the various non-harmonic tones employed), a simple piece of music involving altered chords, passing tones, suspensions, appoggiaturas, and pedal point.

3. Musical Performance ....1 unit

The ability to play acceptably at sight the simpler pieces of the classic composers, on the piano, organ, violin, or voice. The required technique should be the result of at least two years' instruction under a competent teacher.

DOMESTIC SCIENCE.

Domestic Science ....1 to 2 units

One full year's work of not less than six hours per week in cookery, sewing, fitting, or other work usually included in high school courses in this subject.

BOOKKEEPING.

Bookkeeping ....½ to 1 unit

Theory and practice involved in the historical entry, journalizing, special column, the balance sheet, and the customs and laws governing invoices, notes, drafts, bills of lading, receipts, etc. Applicants must be prepared to write out any of the forms involved in the above requirement.

STENOGRAPHY AND TYPEWRITING.

Stenography and Typewriting ....½ to 1 unit

The ability to write from dictation at the rate of forty words a minute, and to transcribe same on the typewriter at the rate of thirty words per minute. Spelling and punctuation must be up to a grade of ninety.

ADMISSION ON CERTIFICATE

Applicants will be admitted without examination on presenting a certificate from any of the *Certificate Schools* named herein.

The following educational institutions having made application to be correlated to this college and having presented an approved course of study, are hereby declared to be *Certificate Schools*, and are granted the privilege set forth in the following:

"Students from certificate schools will be admitted to the freshman class *without examination* upon the certificate of the president or principal, showing definitely that such students have completed satisfactorily all the studies required for admission, as stated in the catalogue, and are otherwise admissible."

The privilege of admitting students to the sophomore class on certificates will be granted only to those approved schools that previously had pupils admitted to that class without conditions.

Admission by certificate is regarded as provisional.

That is, though admitted to the class for which the certificate calls, the applicant may be required to take special examination in any subject in which his preparation proves unsatisfactory, or, after a fair trial, he may be dropped to a lower class, if he fails to maintain standing in the class to which he may be admitted.

District Agricultural Schools

First, Jackson	J. W. Watson
Second, Evergreen	H. T. Lile
Third, Abbeville	W. W. Benson
Fourth, Sylacauga,	G. H. Thigpen
Fifth, Wetumpka	A. S. Ford
Sixth, Hamilton	H. O. Sargent
Seventh, Albertville	E. A. Miller
Eighth, Athens	J. M. Atkinson
Ninth, Blountsville	W. B. Crumpton
Northeast Alabama Agricultural and Industrial Institute, Lineville	J. R. McCain

County High Schools

Autauga, Prattville	A. S. Dale
Barbour, Clio	D. W. McLean
Bibb, Centerville	L. L. Vann
Blount, Oneonta	T. C. Moore
Calhoun, Oxford	G. O. Morris
Cherokee, Center	L. M. Stevenson
Choctaw, Butler	W. F. Osburn
Clarke, Grove Hill	W. F. Puckett
Clay, Ashland	W. A. Sutton
Cleburne, Heflin	L. K. Benson
Coffee, Enterprise	F. M. Fleming
Colbert, Leighton	J. T. Huffstutler
Coosa, Rockford	R. L. Griffin
Cullman, Cullman	J. T. Mckee
Dale, Ozark	N. A. Jones

Dallas, Plantersville	M. J. Bray
DeKalb, Ft. Payne	H. T. Wallace
Elmore, Eclectic	J. J. Yarbrough
Escambia, Atmore	C. A. Peavey
Etowah, Attalla	E. T. Cato
Franklin, Russellville	J. H. Sams
Geneva, Hartford	B. H. Boyd
Houston, Columbia	H. H. Holmes
Jackson, Scottsboro	J. A. Reams
Lamar, Vernon	S. B. Gibson
Lawrence, Moulton	J. M. Crowell
Lee, Opelika	J. D. Murphy
Lowndes, Ft. Deposit	J. L. Moulder
Macon, Notasulga	H. C. McDonald
Madison, Gurley	B. E. Berry
Marengo, Thomaston	W. C. Blasingame
Monroe, Monroeville	J. T. deBardelaben
Morgan, Hartselle	J. H. Riddle
Pickens, Reform	R. L. Reeves
Pike, Brundidge	Necy Lewis
Randolph, Wedowee	J. A. Parrish
St. Clair. Odenville	J. O. Sturdivant
Sumter, York	P. B. Pepper
Tallapoosa, Dadeville	J. E. Hendley
Walker, Jasper	W. P. Worley
Wilcox, Camden	Claude Hardy
Winston, Double Springs	B. B. McLeran

Other High Schools

Alexander City High School, Alexander City	J. M. Pearson
Anniston High School, Anniston	D. R. Murphy
Andalusia High School, Andalusia	W. L. Yarbrough
Auburn High School, Auburn	S. C. Godbold
Barnes' School, Montgomery	E. R. Barnes
Banks-Stephens Institute, Forsyth, Ga.	J. W. Moseley
Baptist Collegiate Institute, Newton	A. W. Tate
Berry School, Rome, Ga.	R. H. Adams
Butler's School, Huntsville	S. B. Butler
Brewton High School, Brewton	G. A. Harris
Bessemer High School, Bessemer	A. A. Persons
Birmingham High School, Birmingham	J. H. Phillips
Carrollton High School, Carrollton, Ga.	H. B. Adams
Cordova High School, Cordova	G. Gilliland
Bay Minette High School, Bay Minette	S. M. Thorpe
Dothan High School, Dothan	J. V. Brown

Demopolis High School, Demopolis	K. G. Hoover
Decatur High School, Decatur	J. M. Collier
Edgar's School for Boys, Montgomery	R. B. Edgar
Eutaw High School, Eutaw	A. F. Jackson
Eufaula High School, Eufaula	H. L. Upshaw
Georgia Military Academy, College Park, Ga.	J. C. Woodward
Gaylesville High School, Gaylesville	G. A. Orr
Georgiana High School, Georgiana	E. L. Stough
Greenville High School, Greenville	C. B. Gamble
Gadsden High School, Gadsden	W. E. Striplin
Geneva High School, Geneva	M. L. Black
Guntersville High School, Guntersville	J. B. Vann
Hayleyville High School, Hayleyville	H. G. Dowling
Headland High School, Headland	W. S. Sconyers
Huntsville High School, Huntsville	R. E. Sessions
La Fayette High School, La Fayette	F. T. Appleby
Luverne High School, Luverne	C. K. Sharp
Linden High School, Linden	J. B. Clark
Mt. Willing High School, Mt. Willing	J. W. Wray
Mobile Military Institute, Mobile	F. R. Peterson
Montgomery High School, Montgomery	C. L. Floyd
Midway High School, Midway	S. W. Hixon
Mobile High School, Mobile	S. S. Murphy
New Decatur High School, New Decatur	W. F. Jones
Noble Institute, Anniston	Rev. James P. Glass
O'Neal High School, Cordele, Ga	J. Scarboro
Opp High School, Opp	J. E. Justice
Pensacola Classical School	H. C. Armstrong
Roanoke High School, Roanoke	H. B. Norton
Selma High School, Selma	A. F. Harman
Slocomb High School, Slocomb	G. M. Veasey
Talladega High School, Talladega	D. A. McNeil
The Hillsboro County High School, Florida	E. M. Hyde
Thomasville High School, Thomasville	E. S. Pugh
Tuscumbia High School, Tuscumbia	J. F. Collins
Tuskegee High School, Tuskegee	W. L. Porter
University Military School, Mobile	J. D. Wright
University School, Montgomery	J. M. Starke
University High School, Birmingham	J. J. White, M. B. Dickinson, J. C. DuBose
Union Springs High School, Union Springs	W. R. Harrison
Verner Military Institute, Tuscaloosa	W. H. Verner
Williams School, Huntsville	Williams

ADMISSION OF YOUNG WOMEN.

Young women of mature mind and character, who are at least seventeen years of age, will be admitted to the Alabama Polytechnic Institute as regular students or as special or irregular when they have satisfied the requirements for admission to the sophomore class. Upon the approval of the Faculty, applicants may be admitted at an age less than seventeen years if a resident of Auburn will act as guardian.

The only conditions imposed will be that they engage in earnest study and attend the exercises regularly. They will board in town with private families and will attend college only at the hours of their exercises.

NUMBER OF EXERCISES REQUIRED.

All students are required to have *not less than fifteen* recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing, and military drill. These additional exercises occupy not less than twelve hours per week, and in all give twenty-seven to thirty hours per week required in college exercises.

SPECIAL AND IRREGULAR STUDENTS.

The privilege of electing studies in the lower classes is not granted to young students nor to their parents.

The faculty will assign a student, on admission, to that class of a prescribed course for which he is qualified, and for special reasons, approved by the faculty, he may be permitted to become irregular.

Students qualified to prosecute the studies of the junior class, and those over twenty-one years of age that are not candidates for a degree, are permitted to take, with the advice of the faculty, the subjects of study for which they may on examination prove themselves qualified.

For an applicant to enter upon the study of civil, mining, electrical, or mechanical engineering as a special or irregular student he must have studied algebra through quadratics and logarithms, plane geometry, and plane trigonometry.

The professor in charge of a department will decide by examination whether a special student is prepared for admission to his class.

A student who does not take all the studies in a class of one of the degree courses, as prescribed in the catalogue, and is permitted to take an irregular course, will be assigned to a member of the faculty, who will act as his special adviser, and when his course of study has been approved by the faculty, no other change will be permitted without the endorsement of his adviser.

Regular students who fail to pass satisfactory final examinations in any one study become irregular students. They will be classed as regular students pursuing a course for a degree, whenever they can pass the examination in those subjects in which they were found deficient.

Students, candidates for a degree who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies, and their names are so placed in the catalogue.

ADMISSION TO HIGHER CLASSES.

For admission to the higher classes, students should be prepared to stand satisfactory examination in all of the studies of the lower classes, as shown in the course of study. Where opportunity has not been offered to pursue special studies required at this institution, the system of equivalents will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactory. But if not prepared to pass an examination in history and chemistry at the time of application, the applicant will be required before graduation to pass a satisfactory examination on these subjects.

It is absolutely essential that students who hope to succeed should be well grounded in arithmetic, algebra, and geometry.

A working knowledge of the metric system should also be obtained.

At the beginning of each term conditioned students may, on application approved by the faculty, be examined for admission to the freshman class in history, English, or mathematics, and be admitted to the freshman class in those subjects in which he passes a satisfactory examination.

Students who have completed satisfactorily all the studies of the sophomore class, as prescribed in the catalogue, in any one of the regular degree courses, can enter without condition, the junior class in in any course except that sophomore Latin is required for the general course and for the course in pharmacy, and sophomore botany is required for all the courses in the college of agricultural sciences. Physiology is required of students taking veterinary science.

Students who are admitted to the junior class from other institutions, on examinations in English, Latin and mathematics, and who have not completed all the studies of the sophomore class, in order to graduate, will be required to complete the course in chemistry and history as taught in the sophomore class. In addition to these two subjects, students who thus enter the junior class of the course in agriculture, will be required to complete the course in botany in the sophomore class.

COURSES OF INSTRUCTION.

The courses of study include the physical, chemical, and natural sciences, with their applications; agriculture, botany, animal industry, horticulture; mechanics, astronomy, mathematics; drawing; civil, electrical, mechanical and mining engineering; architecture; physiology and veterinary science, pharmacy; English, French, German, and Latin languages; history, political economy; mental and moral sciences.

The studies are arranged in regular courses so as to offer liberal and practical education as a preparation for the active pursuits of life.

There are nine degree courses for undergraduates, each leading to the degree of Bachelor of Science (B. S.) and requiring four years for its completion;

I. COURSE IN CIVIL ENGINEERING.
II. COURSE IN ELECTRICAL ENGINEERING.
III. COURSE IN MECHANICAL ENGINEERING.
IV. COURSE IN MINING ENGINEERING.
V. COURSE IN ARCHITECTURE.
VI. COURSE IN CHEMISTRY AND METALLURGY.
VII. COURSE IN AGRICULTURE.
VIII. COURSE IN PHARMACY.
IX. GENERAL COURSE.
X. TWO-YEAR COURSE IN MECHANIC ARTS.
XI. TWO-YEAR COURSE IN AGRICULTURE.
XII. TWO YEAR COURSE IN PHARMACY. (PH. G.)
XIII. THREE YEAR COURSE IN PHARMACY. (PH. C.)
XIV. THREE-YEAR COURSE IN VETERINARY MEDICINE. (D. V. M.
XV. TWO-YEAR COURSE IN APPLIED ELECTRICITY.

Course I. includes the principles and applications of sciences that directly relate to civil engineering, and is adapted to those who expect to enter that profession.

Course II. includes, besides the general principles and applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged to fit men for the profession of electrical engineering.

Course III. furnishes instruction in steam engineering, materials of construction, drawing, and machine design, electrical engineering, together with laboratory work. The course is intended to qualify men to fill positions in the manufacturing industries.

Course IV. includes theoretical and practical instruction in geology, mineralogy; chemistry, civil and electrical engineering, as applied to mines; mapping, exploration; boring; ventilation; timbering, and all the operations pertaining to the profession of mining engineering.

Course V. has been arranged to give a theoretical and practical knowledge of architecture in order to enable students to take advantage of office opportunities upon graduation. It embraces architectural drawing and design, history, and ornamental architectural engineering, and office practice.

Course VI. provides for thorough theoretical and practical instruction in pure and technical chemistry and metallurgy, and in the scientific branches relating thereto. Students taking this course also pursue the study of German or French during the junior and senior years, and are thus prepared to utilize for reference and for study scientific journals and works published in those languages.

Course VII. includes theoretical and practical instruction in those branches that relate to agriculture, horticulture, animal industry, botany and entomology, and is especially adapted to those who intend to devote themselves to agricultural and horticultural pursuits.

Course VIII. includes, besides the general education of Course VI. in the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Course IX. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as those who intend ultimately to engage in teaching or in some commercial or professional business.

Courses X., XI., XII., XIII., XIV., and XV. have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and to take one of the regular degree courses. To enter these courses a student must be not less than seventeen years of age.

Special Course in Agriculture.—Young men over tweny-one years of age who desire to study agriculture will be permitted, without examination, to enter any class under the professor of agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied. They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus in one year acquire valuable practical knowledge of scientific agriculture.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, with approval of the faculty, may be awarded a certificate of proficiency in that subject.

Students who complete one of the two-year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

A student who completes the work of the two-year course in pharmacy and submits a satisfactory thesis will be granted the degree of Graduate in Pharmacy, (Ph. G.)

A student who completes the work of the three-year course in pharmacy and submits a satisfactory thesis will be granted the degree of Pharmaceutical Chemist, (Ph. C.)

A student who completes the work of the three-year course in veterinary medicine and submits a satisfactory thesis will be granted the degree of Doctor of Veterinary Medicine, (D. V. M.)

No degree or certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English. Every candidate for a degree will be required to stand this special examination during the senior year.

Declamations and themes or orations are required of all regular students pursuing courses leading to a degree. For requirements, see Department of English.

GRADUATE COURSES.

A more extended graduate course of study may be taken by a graduate of this institution or of any college of equal grade. The completion of a course which leads to a post-graduate degree of Master of Science requires one year's residence, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the faculty.

The candidate must also present to the faculty a satisfactory thesis showing independent investigation upon some subject pertaining to his course, and must pass an examination, at the close of each term, on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the faculty.

The subject for the thesis must be submitted to the faculty for approval prior to January 1st, and the thesis given to the professor of English by May 1st.

Applicants for a post-graduate degree and special students in post-senior studies are subject to the same general regulations as other students, and *pay the same fees;* but are exempt from all military duty.

The following courses are prescribed for the degree named:

1. *Master of Science.*—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class; or in special cases, with the approval of the faculty, a student may devote his full time to work in two departments, in each of which he has completed the full senior course.
2. *Master of Science in Pharmacy.*—Pharmacy and chemistry.

PROFESSIONAL DEGREES IN ENGINEERING.

I. Degrees in Course.—The professional degree of Civil Engineer, Electrical Engineer, Mechanical Engineer, or Engineer of Mines will be conferred upon graduate students upon the satisfactory completion of the course of study prescribed, a residence of one year at the institute being required for the completion of these courses.

A written application stating the degree desired and the course of study selected must be submitted to the faculty at the beginning of the session. A satisfactory thesis must be submitted by May 1st.

The following courses of study are prescribed for the degrees named:

Civil Engineer.—Civil engineering and any two subjects selected from the following: Mathematics, analytical mechanics, mechanical engineering, electrical engineering, mining engineering, bacteriology.

Electrical Engineer.—Electrical engineering and mechanical engineering; or electrical engineering, mathematics and civil engineering.

Mechanical Engineer.—Mechanical engineering and machine design; or mechanical engineering, mathematics and mining engineering.

Engineer of Mines.—Graduate students who have completed the course in mining engineering, including German, may apply for this degree. The subjects to be pursued are mining engineering, civil engineering, and one other technical subject related to mining and metallurgy, and approved by the faculty.

II. Degrees for Professional Work.—The above named professional degrees may be conferred upon graduates of the Alabama Polytechnic Institute in civil, electrical, mechanical, and mining engineering, upon complying with the following requirements:

1. The candidate must have spent at least four full years in the practice of that branch of engineering in which he graduated.
2. An approved thesis must be submitted to the faculty not later than May 1st of the year in which the degree is sought.
3. The candidate must show that he has filled satisfactorily, a responsible position in charge of important engineering work. Written testimonials from employers or clients will be accepted as evidence of satisfactory service.
4. A written application, stating the degree desired, and giving a report or outline of the professional work upon which the application is based, must be submitted not later than January 1st of the year in which the degree is to be granted.

III. Special Students in Graduate Studies.—Students who are not graduates, but are qualified in special subjects to prosecute graduate studies, and desire to prepare themselves more thoroughly for professional or special work in any one of the departments of engineering, in chemistry, pharmacy, veterinary science, or other subjects in which instruction is given, may, when qualified, with approval of the faculty, enter this higher department of study and have all the privileges of post-graduate students.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

Two degrees will not be given the same year.

LABORATORIES.

Laboratory instruction constitutes an important feature in the course of education provided for the students of this institute, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. Civil Engineering, Field Work, Surveying, Etc.
II. Electrical Engineering, Telephone Engineering.
III. Mechanical Engineering.
IV. Mechanic Arts.
V. Mining Engineering, Mineralogy.
VI. Ore Dressing.
VII. Architecture.
VIII. Technical Drawing, Machine Design.
IX. Chemistry, Metallurgy.
X. Agriculture.
XI. Botany.
XII. Pharmacy, Pharmaceutical Chemistry.
XIII. Horticulture.
XIV. Entomology.
XV. Animal Industry.
XVI. History; English.
XVII. Physics.
XVIII. Military Tactics.
XIX. Veterinary Science, Bacteriology, Physiology.

Note.—Special work in English or history may be taken by students in the general course as a substitute for laboratory work.

ORGANIZATION

The departments of instruction of the Institute have been arranged in four groups, known as the Academic College, the College of Engineering and Mines, the College of Agricultural Sciences, and the College of Veterinary Medicine and Surgery.

The Academic College offers one degree course in the general educational subjects and languages.

The College of Engineering and Mines offers degree courses in civil engineering, electrical engineering, mechanical engineering, mining engineering, architecture, and chemistry and metallurgy.

The College of Agricultural Sciences offers regular degree courses in agriculture and pharmacy; a three-year course in pharmacy and a two-year course in pharmacy; a two-year course in agriculture.

The College of Veterinary Medicine and Surgery offers a three-year course leading to the degree of Doctor of Veterinary Medicine.

COURSES OF INSTRUCTION

COURSES OF INSTRUCTION

(Note:--The numbers in the Courses of Instruction refer to the subjects as described under "Description of Courses," pages 98 to 175 of this catalogue. The following abbreviations are used: Ac., Academic College; Eng., College of Engineering and Mines; Agr., College of Agricultural Sciences; Vet., College of Veterinary Medicine and Surgery; H. Wk., Hours per Week).

ACADEMIC COLLEGE.

GENERAL COURSE.

FRESHMAN CLASS.

First Term

	H. Wk.
English (Ac. 101a, 102a)	5
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 401)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanics Arts (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	3
Latin (Ac. 209)	3
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Agriculture (Agr. 201)	2
Mechanic Arts (Eng. 303)	6
Military Drill (Ac. 600)	3

SOPHOMORE CLASS

First Term

Latin (Ac. 210)	5
English (Ac. 103)	4
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 304), or English Lab'y (Ac. 105)	4
Military Drill (Ac. 600)	3

Second Term

Latin (Ac. 210)	5
English (Ac. 104)	4
History (Ac. 202)	3
Mathematics (Ac. 404)	4
*Surveying (Eng. 101)	4
Chemistry (Agr. 101)	4
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 305) or English Lab'y (Ac. 105)	4
Military Drill (Ac. 600)	3

Third Term

Latin (Ac. 210)	5
English (Ac. 104)	4
History (x) (Ac. 204)	3
Mathematics (Ac. 404)	4
*Surveying (Eng. 101)	4
Chemistry (Agr. 101)	4
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 305) or English Lab'y (Ac. 105)	4
Military Drill (Ac. 600)	3

(x) Botany (Agr. 301), or Theoretical Mechanics (Ac. 503), may be substituted.

* Optional for women.

JUNIOR CLASS

First Term

English (Ac. 107)	3
Latin (Ac. 211)	3
French (Ac. 301 a)	4
German (Ac. 305a)	4
Mathematics (Ac. 405)	3

	H. Wk.
Physics (Ac. 504)	3
Military Tactics (Ac. 601)	1
History (a) (Ac. 206)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
Latin (Ac. 211)	3
French (Ac. 301b)	3
German (Ac. 305b)	3
Mathematics (Ac. 405)	3
Physics (Ac. 504)	3
Military Tactics (Ac. 601)	1
History (a) (Ac. 206)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 107)	3
Latin (Ac. 211)	3
French (Ac. 301c)	3
German (Ac. 305c)	4
Mathematics (Ac. 405)	3
Physics (Ac. 504)	3
Military Tactics (Ac. 602)	1
History (a) (Ac. 206)	6
Military Drill (Ac. 600)	3

(a) The student may substitute laboratory of any department of natural science for which he may be qualified.

SENIOR CLASS

First Term

	H. Wk.
English (Ac. 109)	2
Mental Science (Ac. 1)	2
Latin (x) (Ac. 212)	3
French (Ac. 302a)	4
German (Ac. 306a)	4
Geology (Eng. 403)	2
Military Science (Ac. 603)	1
History (a) (Ac. 206)	6

Second Term

Political Economy (Ac. 2)	2
Mental Science (Ac. 1)	2
Latin (x) (Ac. 212)	3
French (Ac. 302b)	4
German (Ac. 306b)	4
Geology (Eng. 403)	2
Military Science (Ac. 604)	1
History (a) (Ac. 206)	6

Third Term

Political Economy (Ac. 2)	2
Mental Science (Ac. 1)	2
Latin (x) (Ac. 212)	3
French (Ac. 302c)	4
German (Ac. 306c)	4
Geology (Eng. 403)	2
Astronomy (Ac. 506)	2
History (a) (Ac. 206)	6
or Teachers' Physics (Ac. 508)	2
Military Science (Ac. 605)	1

(x) English Constitutional History may be substituted.

(a) The student may substitute laboratory of any department of natural science for which he may be qualified.

COLLEGE OF ENGINEERING AND MINES

The following studies in the freshman and sophomore classes are prescribed in the departments of civil, electrical, mechanical and mining engineering.

FRESHMAN CLASS

First Term

	H. Wk.
English (Ac. 101a, 102a)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry, (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 101b, 102b)	5

	H. Wk.
History (Ac. 201)	3
Mathematics (Ac. 402)	5
Agriculture (Agr. 201, 801)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 303)	6
Military Drill (Ac. 600)	3

SOPHOMORE CLASS

First Term

English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Chemistry (Agr. 101)	4
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 304)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term

English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac 404)	4
Surveying (Eng. 101)	4
Chemistry (Agr. 101)	4
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 305)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term

English (Ac. 104)	3
Elementary Mechanics (Ac. 503)	3
Mathematics (Ac. 404)	4
Surveying (Eng. 101)	4
Chemistry (Agr. 101)	4
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 305)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Surveying, (Eng. 105): For students who expect to take the course in civil engineering or in mining engineering. Sixty hours per week for four weeks immediately after commencement in summer camp.

IN CIVIL ENGINEERING

JUNIOR CLASS

First Term

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Railroad Surveying (Eng. 106)	6
Roads and Pavements (Eng. 107)	5
Structural Drafting (Eng. 112)	5
Military Tactics (Ac. 601)	1
Machine Shop (Eng. 310) or Mineralogy (Eng. 402)	4
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
Mathematics (Ac. 405, 406)	5
Physics (Ac. 504)	3
Mechanics of materials (Eng. 110)	5
Road materials Lab'y (Eng. 108)	3
Structural Drafting (Eng. 112)	5
Field Work	6
Graphic Statics (Eng. 111)	3
Machine Shop (Eng. 310) or Mineralogy (Eng. 402)	4
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

English (Ac. 107)	3
Mathematics (Ac. 406)	5
Physics (Ac. 504)	3
Mechanics of Materials (Eng. 110)	5
Road and Street Improvements Eng. 109)	6
Structural Drafting (Eng. 112)	5
Machine Shop (Eng. 310) or Mineralogy (Eng. 402)	4
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

Surveying. Sixty hours per week for four weeks immediately after commencement in summer camp.

SENIOR CLASS

First Term

	H. Wk.
English (Ac. 108)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Geology (Eng. 403)	2
Theory of Structures (Eng. 113)	5
Railroad Engineering (Eng. 115)	3
Structural Design (Eng. 114)	9
Military Science (Ac. 603)	1
Thesis (Eng. 121)	4

Second Term

	H. Wk.
Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Geology (Eng. 403)	2
Theoretical Hydraulics (Eng. 116)	5
Concrete Construction (Eng. 118)	3
Military Science (Ac. 604)	1
Mechanical Engineering Lab. (Eng. 319)	4
Thesis (Eng. 121)	9

Third Term

	H. Wk.
Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Geology (Eng. 403)	3
Sanitary Engineering (Eng. 120)	5
Masonry and Foundations (Eng. 119)	3
Practical Hydraulics (Eng. 117)	4
Structural Design (Eng. 114)	9
Military Science (Ac. 605)	1

IN ELECTRICAL ENGINEERING

JUNIOR CLASS

First Term

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 201)	3
Electrical Meas. (Eng. 205)	1
Kinematics (Eng. 604)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 308)	1
Electrical Lab'y (Eng. 206)	4
Shop Work (Eng. 309)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 405, 406)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 202)	3
Electrical Meas. (Eng. 205)	1
Mechanics (Eng. 306)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 308)	1
Electrical Lab'y (Eng. 207)	4
Shop Work (Eng. 309)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 406)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 203)	3
Electrical Tests (Eng. 205)	1
Strength Materials (Eng. 307)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 308)	1
Electrical Lab'y (Eng. 208)	4
Shop Work (Eng. 309)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

SENIOR CLASS

First Term

	H. Wk.
English (Ac. 108)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Electrical Eng. (Eng. 210)	5
Electrical Lab'y (Eng. 213)	4
Electrical Design'g (Eng. 221)	2
Telephone Eng. (Eng. 216)	2
Telephone Lab'y (Eng. 207)	2
Steam Engines (Eng. 311)	5
Mech. Eng. Lab'y (Eng. 318)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 603)	1

Second Term

	H. Wk.
Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2

	H. Wk.
Electrical Eng. (Eng. 211)	5
Electrical Lab'y (Eng. 213)	4
Electrical Designing(Eng. 221)	2
Telephone Eng. (Eng. 216)	2
Telephone Lab'y (Eng. 217)	2
Thermodynamics (Eng. 312)	5
Mech. Eng. Lab. (Eng. 319)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 604)	1

Third Term

Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Electrical Eng. (Eng. 212)	5
Electric Eng. Lab. (Eng. 213)	4
Specifications and Contracts (Eng. 219)	2
Thermodynamics (Eng. 312)	5
Mech. Eng. Lab. (Eng. 320)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 605)	1

IN MECHANICAL ENGINEERING

JUNIOR CLASS

First Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Kinematics (Eng. 604)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Elec. Eng. (Eng. 204)	3
Elec. Eng. Lab'y (Eng. 206)	4
Practical Mechs. (Eng. 308)	1
Shop Work (Eng. 309)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
Mathematics (Ac. 405, 406)	5
Kinematics (Eng. 604)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Elec. Eng. (Eng. 204)	3
Elec. Eng. Lab'y (Eng. 206)	4
Practical Mechs. (Eng. 308)	1
Shop Work (Eng. 309)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 406)	5
Physics (Ac. 504)	3
Strength of Materials (Eng. 307)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Elec. Eng. (Eng. 204a)	3
Elec. Eng. Laby. (Eng. 208)	4
Practical Mech. (Eng. 308)	1
Shop Work (Eng. 309)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

Summer course, Engineering 317. Taken immediately after commencement.

SENIOR CLASS

First Term

English (Ac. 108)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Elec. Eng. (a) (Eng. 217)	3
Heating and Ventilation (Eng. 313)	2
Mech. of Materials (Eng. 315)	3
Power Plant Eng. (Eng. 311)	5
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Elec. Eng. Laby. (Eng. 218)	4
Mech. Eng. Laby. (Eng. 318)	3
Military Science (Ac. 603)	1

Second Term

Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Hydraulics (Eng. 110)	5
Thermodynamics (Eng. 312)	5
Gas Engines (Eng. 314)	2
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Mech. Eng Laby. (Eng. 319)	4
Military Science (Ac. 604)	1

Third Term

Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Materials of Mach. (Eng. 315)	3
Thermodynamics (Eng. 312)	5
Contracts and Spec. (Eng.219)	2
Mach. Design (Eng. 607)	1

	H. Wk.
Mach. Design (Eng. 608)	6
Mech. Eng. Lab'y (Eng. 320)	4
Military Science (Ac. 605)	1

(a) Courses 113 and 114 in civil engineering may be substituted.

IN MINING ENGINEERING

JUNIOR CLASS

First Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Geology (Eng. 403)	2
Drawing (Eng. 406)	4
Surveying (Eng. 103)	5
Lab. Mineralogy (Eng. 401)	4
Mach. Shop (Eng. 310)	4
Practical Mechanics (Eng. 308)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3
Field Work (Eng. 103)	3

Second Term

English (Ac. 107)	3
Mathematics (Ac. 405, 406)	5
Physics (Ac. 504)	3
Mechanics (Eng. 308)	3
Geology (Eng. 403)	2
Drawing (Eng. 406)	4
Mining Engineering (Eng. 404)	5
Laboratory Mineralogy (Eng. 402)	4
Machine Shop (Eng. 310)	4
Practical Mechanics (Eng. 308)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3
Field Work (Eng. 103)	3

Third Term

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 406)	5
Physics (Ac. 504)	3
Strength of Materials (Eng. 307)	3
Geology (Eng. 403)	2
Drawing (Eng. 406)	4
Mining Engineering (Eng. 405)	5
Laboratory Mineralogy (Eng. 402)	4
Machine Shop (Eng. 310)	4
Practical Mechanics (Eng. 308)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3
Field Work (Eng. 103)	3

Summer course, Engineering 407. Taken immediately after commencement.

SENIOR CLASS.

First Term.

English (Ac. 108)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Economic Geology (Eng. 408)	2
Mining Engineering (Eng. 410)	3
Electrical Eng. (Eng. 204)	2
Metallurgy (Agr. 104)	2
Drawing (Eng. 411)	3
Military Science (Ac. 603)	1
Assaying (Agr. 110c)	8
Metallurgical Lab'y (Eng. 412)	3

Second Term.

Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Hydraulics (Eng. 110)	5
Mining Engineering (Eng. 410)	3
Electrical Engineering (Eng. 204)	2
Metallurgy (Agr. 104)	2
Drawing (Eng. 411)	3
Military Science (Ac. 604)	1
Assaying (Agr. 110c)	8
Metallurgical Lab'y (Eng. 412)	3

Third Term.

Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Economic Geology (Eng. 409)	2
Mining Engineering (Eng. 410)	3
Metallurgy (Agr. 104)	2
Drawing (Eng. 411)	3
Military Science (Ac. 605)	1
Assaying (Agr. 110c)	8
Metalurgical Lab'y (Eng. 412)	3

IN ARCHITECTURE

FRESHMAN CLASS

First Term

	H. Wk.
English (Ac. 101a, 102a)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
English (Ac. 101b, 102b)	5
History (Ac. 201)	3
Mathematics (Ac. 402)	5
Agriculture (Agr. 201, 801)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 303)	6
Military Drill (Ac. 600)	3

SOPHOMORE CLASS

First Term

	H. Wk.
English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Chemistry (Agr. 101)	4
Descriptive Geometry (Eng. 602)	3
Architectural Drawing (Eng. 501)	3
Mechanic Arts (Eng. 304)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 404)	4
Surveying (Eng. 101)	4
Chemistry (Agr. 101)	4
Descriptive Geometry (Eng. 402)	3
Architectural Drawing (Eng. 501)	3
Mechanic Arts (Eng. 305)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
English (Ac. 104)	3
Elementary Mechanics (Ac. 503)	3
Mathematics (Ac. 404)	4
Surveying (Eng. 101)	4
Chemistry (Agr. 101)	4
Descriptive Geometry (Eng. 602)	3
Architectural Drawing (Eng. 501)	3
Mechanic Arts (Eng. 305)	4
Physical Laboratory (Ac. 502)	2
Military Drill Ac. 600)	3

JUNIOR CLASS

First Term

	H. Wk.
French (Ac. 301a)	4
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Shades and Shadows (Eng. 505)	3
Ancient Arch. History (Eng. 503)	2
Ancient Ornament (Eng. 503a)	1
Theory of Architecture (Eng. 502)	1
Drawing and Design (Eng. 504)	8
Freehand Drawing (Eng. 504a)	2
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
French (Ac. 301b)	3
Mathematics (Ac. 405, 406)	5
Physics (Ac. 504)	3
Shades and Shadows (Eng. 505)	3
Mediaeval Arch. History (Eng. 503)	2
Mediaeval Ornament (Eng. 503a)	1
Theory of Arch. (Eng. 502)	1
Drawing and Design (Eng. 504)	8
Freehand Drawing (Eng. 504a)	2
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
French (Ac. 301c)	3
Mathematics (Ac. 406)	5
Physics (Ac. 504)	3
Perspective (Eng. 508)	3
Modern Arch. Hist. (Eng. 503)	2
Modern Ornament (Eng. 503a)	1
Theory of Arch. (Eng. 502)	1
Drawing and Design (Eng. 504)	8
Freehand Drawing (Eng. 504a)	2
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

SENIOR CLASS

First Term

English (Ac. 108)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Architectural Eng. (Eng. 507)	3
Spec. and Bldg. Mtls. Eng. 508)	3
Drawing and Design (Eng. 506)	12
Freehand Drawing (Eng. 506a)	2
Military Science (Ac. 603)	1

Second Term

Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Arch. Engineering (Eng. 507)	3
Spec. and Bldg. Mtls. (Eng. 508)	3
Drawing and Design (Eng. 506)	12
Freehand Drawing (Eng. 506a)	2
Military Science (Ac. 604)	1

Third Term

Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Arch. Engineering (Eng. 507)	3
Spec. and Bldg. Mtls. (Eng. 508)	3
Thesis (Eng. 506)	12
Freehand Drawing (Eng. 506a)	2
Military Science (Ac. 605)	1

IN ARCHITECTURAL ENGINEERING

(Course of study in freshman and sophomore classes is the same as is prescribed for the course in Architecture. See preceding page.)

JUNIOR CLASS

First Term

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Shades and Shadows (Eng. 505)	3
Stereotomy (Eng. 505a)	2
Ancient Arch. Hist. (Eng. 503)	2
Ancient Ornament (Eng. 503a)	1
Theory of Architecture (Eng. 502)	1
Drawing and Design (Eng. 504)	8
Freehand Drawing (Eng. 504a)	2
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
Mathematics (Ac. 405, 406)	5
Physics (Ac. 504)	3
Mechanics (Eng. 306)	3
Shades and Shadows (Eng. 505)	3
Mediaeval Arch. Hist. (Eng. 503)	2
Mediaeval Ornament (Eng. 503a)	1
Theory of Arch. (Eng. 502)	1
Drawing and Design (Eng. 504)	8
Freehand Drawing (Eng. 504a.)	2
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 107)	3
Mathematics (Ac. 406)	5
Physics (Ac. 504)	3
Str. of Materials (Eng. 307)	3
Perspective (Eng. 505)	3
Modern Arch. Hist. (Eng. 503)	2
Modern Ornament (Eng. 503a)	1
Theory of Arch. (Eng. 502)	1
Drawing and Design (Eng. 504)	8
Freehand Drawing (Eng. 504a.)	2
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

SENIOR CLASS.

First Term.

	H. Wk.
English (Ac. 108)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
*Foundations (Eng. 109)	5
Heating and Vent. (Eng. 313)	2
Arch. Engineering (Eng. 507)	3
Specf. and B. M. (Eng. 508)	3
Structural Drawing (Eng. 507a.)	10
Military Science (Ac. 603)	1

Second Term.

	H. Wk.
Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Arch. Eng. (Eng. 507)	3
Specf. and B. M. (Eng. 508)	3
Structural Drawing (Eng. 507a.)	10
Laboratory Testing (Eng. 319)	4
Military Science (Ac. 604)	1

Third Term

	H. Wk.
Political Economy (Ac. 2)	2
Physics (Ac. 505)	2
Arch. Engineering (Eng. 507)	3
Mtls. of Construction (Eng. 316)	3
Specfs. and B. Mtl. (Eng. 508)	3
Structural Drawing (Eng. 507a.)	10
Military Science (Ac. 604)	1

*Second half, first term.

IN CHEMISTRY AND METALLURGY

FRESHMAN CLASS.

First Term.

	H. Wk.
English (Ac. 101a, 102a)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term.

	H. Wk.
English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
English (Ac. 101b, 102b.)	5
History (Ac. 201)	3
Mathematics (Ac. 402)	5
Agriculture (Agr. 801, 201)	4
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 303)	6
Military Drill (Ac. 600)	3

SOPHOMORE CLASS.

First Term.

	H. Wk.
English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Chemistry (Agr. 101)	4
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Physical Laboratory (Ac. 502)	2
Chem. Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term.

	H. Wk.
English (Ac. 104)	3
History (Ac. 202)	4
Mathematics (Ac. 404)	4
Surveying (Eng. 101)	4
Chemistry (Agr. 101)	4
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Physical Lab'y (Ac. 502)	2
Chemical Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
English (Ac. 104)	3
Elementary Mechanics (Ac. 503)	3
Mathematics (Ac. 404)	4

	H. Wk.
Surveying (Eng. 101)	4
Chemistry (Agr. 101)	4
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Physical Laboratory (Ac. 502)	2
Chem. Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

JUNIOR CLASS

First Term

	H. Wk.
English (Ac. 107)	3
Physics (Ac. 504)	3
Industrial Chemistry (Agr. 102a)	4
Organic Chemistry (Agr. 103a)	2
Mineralogy Laboratory (Eng. 401)	4
Geology (Eng. 403)	2
Military Science (Ac. 601)	1
Chemical Laboratory (Agr. 110b)	9
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (Ac. 107)	3
Physics (Ac. 504)	3
Industrial Chemistry (Agr. 102a)	4
Organic Chem. (Agr. 103a)	2
Mineralogy Laboratory (Eng. 402)	4
Geology (Eng. 403)	2
Military Science (Ac. 601)	1
Chemical Laboratory (Agr. 110b)	9
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
English (Ac. 107)	3
Physics (Ac. 504)	3
Industrial Chem. (Agr. 102a)	4
Organic Chemistry (Agr. 103a)	2
Mineralogy Laboratory (Eng. 402)	4
Geology (Eng. 403)	2
Military Science (Ac. 602)	1
Chemical Laboratory (Agr. 110b)	9
Military Drill (Ac. 600)	3

SENIOR CLASS

First Term

	H. Wk.
English (Ac. 108)	2
Physics (a) (Ac. 505)	2
French (b) (Ac. 301a)	4
Economic Geology (Eng. 408)	2
Metallurgy (Agr. 104)	2
Engineering Chemistry (Agr. 106)	1
Theoretical Chemistry (Agr. 107)	2
Military Science (Ac. 603)	1
Chem. Lab'y. and Assaying (Agr. 110d)	8
Metallurgical Designing or Metallurgical Laboratory (Eng. 412)	3

Second Term

	H. Wk.
Political Economy (Ac. 2)	2
Physics (a) (Ac. 505)	2
French (b) (Ac. 301b)	3
Economic Geology (Eng. 408)	2
Metallurgy (Agr. 104)	2
Engineering Chemistry (Agr. 106)	1
Theoretical Chemistry (Agr. 107)	2
Military Science (Ac. 604)	1
Chemical Lab'y and Assaying (Agr. 110d)	8
Metallurgical Designing or Metallurgical Laboratory (Eng. 412)	3

Third Term

	H. Wk.
Political Economy (Ac. 2)	2
Astronomy (a) (Ac. 506)	2
French (b) (Ac. 302c)	4
Economic Geology (Eng. 408)	2
Metallurgy (Agr. 104)	2
Engineering Chemistry (Agr. 106)	1
Theoretical Chemistry (Agr. 107)	2
Military Science (Ac. 605)	1
Chem. Lab'y and Assaying (Agr. 110d)	8
Metallurgical Designing or Metallurgical Laboratory (Eng. 412)	3

(a) Or Physical Chemistry.
(b) Or German.

TWO YEAR COURSE IN MECHANIC ARTS

First Year

First Term.

	H. Wk.
English (Ac. 101a, 102a)	5
History (Ac. 201)	2
Mathematics (Ac. 401, 402)	5
Elementary Physics (Ac. 501)	3
Drawing (Eng. 601)	3
Shop Work (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 401, 402)	5
Elementary Physics (Ac. 501)	2
Drawing (Eng. 601)	3
Shop Work (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 401, 402)	5
Agriculture (Agr. 201, 801)	3
Drawing (Eng. 601)	3
Shop Work (Eng. 203)	6
Military Drill (Ac. 600)	3

Second Year.

First Term

English (Ac. 103a)	3
Mathematics (Ac. 403)	5
Physics (Ac. 501)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 304, 309)	12
Military Drill (Ac. 600)	3

Second Term

English (Ac. 103b)	3
Mathematics (Ac. 404)	4
Surveying (Eng. 101)	4
Physics (Ac. 501)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 305, 309)	12
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
English (Ac. 104)	3
Mathematics (Ac. 404)	4
Surveying (Eng. 101)	4
Physics (Ac. 501)	3
Drawing (Eng. 602)	3
Shop Work (Eng. 305, 309)	12
Military Drill (Ac. 600)	3

TWO YEAR COURSE IN APPLIED ELECTRICITY

First Year.

First Term

English (Ac. 101a, 102a)	5
Mathematics (special course)	5
Electrical Engineering (Eng. 204)	4
Mechanical Eng. (Eng. 327)	3
Drawing (Eng. 601)	3
Electrical Lab'y (Eng. 206)	4
Shop Work (Eng. 304)	4

Second Term.

English (Ac. 101b, 102b)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	4
Mechanical Eng. (Eng. 328)	3
Drawing (Eng. 603)	3
Electrical Lab'y (Eng. 207)	4
Shop Work (Eng. 305)	4

Third Term

English (Ac. 101b, 102b)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 205)	4
Mechanical Eng. (Eng. 329)	3
Drawing (Eng. 603)	3
Electrical Lab'y. (Eng. 208)	4
Shop Work (Eng. 305)	4

Second Year.

First Term

English (Ac. 103a)	3
Mathematics (Ac. 407)	5
Electrical Eng. (Eng. 217)	4
Mechanical Eng. (Eng. 604)	3
Practical Mech. (Eng. 308)	1
Drawing (Eng. 606)	3

	H. Wk.
Electrical Lab'y (Eng. 218)	4
Shop Work (Eng. 310)	4
Power House (Eng. 221)	4

Second Term

English (Ac. 103b)	3
Surveying (Eng. 101)	4
Electrical Eng. (Eng. 217a)	4
Mechanical Eng. (Eng. 306)	3
Practical Mechanics (Eng. 308)	1
Drawing (Eng. 606)	4
Electrical Lab'y. (Eng. 218a)	4

	H. Wk.
Shop Work (Eng. 310)	4
Power House (Eng. 221)	4

Third Term

English (Ac. 104)	3
Street Railway (Eng. 214)	2
Electrical Eng. (Eng. 217b)	4
Mechanical Eng. (Eng. 307)	3
Practical Mechanics (Eng. 308)	1
Drawing (Eng. 606)	4
Electrical Lab'y. (Eng. 218b)	4
Shop Work (Eng. 310)	4
Power House (Eng. 308)	4

COLLEGE OF AGRICULTURAL SCIENCES

IN AGRICULTURE

FRESHMAN CLASS.

First Term

	H. Wk.
English (Ac. 101a, 102a)	5
History (Ac. 201)	5
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts Laboratory (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanics Arts Laboratory (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	3
Mathematics (Ac. 402)	5
Agriculture (Agr. 801, 201)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts Laboratory (Eng. 303)	6
Military Drill (Ac. 600)	3

SOPHOMORE CLASS

First Term

	H. Wk.
English (a) (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Chemistry (Agr. 101)	4
Physiology (Vet. 101)	2
Animal Industry (Agr. 802)	4
Chemical Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term

English (a) (Ac. 104)	3
History (Ac. 202)	4
Mathematics (Ac. 404)	4
Surveying (Eng. 101)	4
Chemistry (Agr. 101)	4
Physiology (Vet. 101)	2
Animal Industry Laboratory (Agr. 803)	2
Agriculture (Agr. 202)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Third Term

English (a) (Ac. 104)	3
Mathematics (Ac. 404)	4
Surveying (Eng. 101)	4
Chemistry (Agr. 101)	4
Botany and Botany Laboratory (Agr. 301)	7

	H. Wk.
Physiology (Vet. 101)	2
Agriculture (Agr. 203)	4
Chem. Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

(a) Latin may be substituted.

Junior Class.

First Term.

	H. Wk.
English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103b)	2
Botany and Bot. Laboratory (Agr. 302)	6
Veterinary Science and Veterinary Lab'y (b) (Vet. 102)	5
Agriculture and Agricultural Lab'y (c) (Agr. 204)	4
Horticulture and Horticultural Lab'y (c) (Agr. 601)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term.

	H. Wk.
English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Agricultural Chem. (Agr. 105)	3
Botany and Bot. Lab'y. (Agr.) 302)	6
Veterinary Science and Vet. Lab'y (b) (Vet. 102)	5
Animal Industry and Animal Industry Lab'y (c) (Agr. 804)	4
Horticulture and Horticultural Laboratory (c) (Agr. 602)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Agricultural Chemistry (Agr. 105)	3
Botany and Bot. Laboratory (Agr. 302)	6
Veterinary Science and Vet. Lab'y (b) (Vet 102)	5
Animal Industry and Animal Industry Lab'y (c) (Agr. 804)	6
Agr. and Agr. Lab'y (c) (Agr. 205)	4
Hort. and Hort. Lab'y (d) (Agr. 603, 603a)	4
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

(a), (b) French, German or Latin may be substituted.

(c) Six hours of chemical laboratory, Agricultural 110b, may be substituted.

(d) Elective.

Senior Class.

The studies of the course in agriculture are divided into five groups, as follows:

Group "A," agriculture: Gives special prominence to crops, soils, and farm machinery.

Group "B," horticulture: Gives special reference to fruit growing, trucking, and landscape gardening.

Group "C," animal industry: Gives special prominence to all work pertaining to live stock.

Group "D," agricultural chemistry: Especially designed to prepare students for experiment station and fertilizer control work.

Group "E," Botany: Designed to train students for station work or to pursue advanced work in botany.

The elective work in each group must be approved at the beginning of the senior year by the president and the professor in charge, and with the required work must aggregate at least twenty-one hours counting two hours laboratory equal to one hour.

The giving of an elective course will be optional with the professor in charge unless it be elected by at least four students.

GROUP "A," AGRICULTURE.

First Term.

Agr. and Agr. Lab. (Agr. 206)	4
Entomology and Ent. Laboratory (Agr. 701, 702)	5

	H. Wk.
Geology (Eng. 403)	2
Military Science (Ac. 603)	1
German (a) (Ac. 305a)	4
Thesis (Agr. 209)	2

Second Term.

Agr. and Agr. Lab. (Agr. 212)	4
Forestry and Forestry Laboratory (Agr. 608)	5
Geology (Eng. 403)	2
Military Science (Ac. 604)	1
German (a) (Ac. 305b)	3
Thesis (Agr. 209)	2

Third Term.

Agr. and Agr. Lab. (Agr. 208)	4
Ent. and Ent. Lab, (Agr. 703, 704)	5
Geology (Eng. 403)	2
Military Science (Ac. 605)	1
German (a) (Ac. 305c)	4
Thesis (Agr. 209)	2

(a) French may be substituted.

Electives. The equivalent of at least seven hours from the following subjects:

First Term.

Soils and Soils Lab. (Agr. 211)	5
Animal Ind. and Animal Ind. Laboratory (Agr. 806, 809)	4
Hort. and Hort. Lab. (Agr. 604)	5
Bot. and Bot. Lab'y. (Agr. 305)	6
Vet. Science and Vet. Laboratory (Vet. 102)	5
Industrial Chem. (Agr. 102a)	3
Organic Chem. (Agr. 103a)	2
French (Ac. 302a)	4
Physics (Ac. 505)	2
Chem. Laboratory (Agr. 110)	6
Mathematics (Ac. 405, 406, or 407)	3

Second Term.

	H. Wk.
Soils and Soils Lab'y (Agr. 211)	5
Animal Ind. and Ani. Ind. Lab. (Agr. 808)	4
Horticulture (Agr. 606)	5
Botany and Bot. Lab'y (Agr. 306)	6
Vet. Science and Vet. Laboratory (Vet. 102)	5
Industrial Chem. (Agr. 102a)	3
Organic Chemistry (Agr. 103a)	2
French (Ac. 302b)	4
Chem. Laboratory (Agr. 110)	6
Mathematics (Ac. 405, 406, or 407)	3

Third Term

Soils and Soils Laboratory (Agr. 211)	5
Animal Industry and Ani. Industry Lab'y (Agr. 807)	4
Horticulture and Hort. Lab'y (Agr. 609)	7
Bot. and Bot Lab. (Agr. 307)	6
Vet. Science and Vet. Lab'y (Vet 102)	5
Industrial Chemistry (Agr. (102a)	3
Organic Chem. (Agr. 103a)	2
French (Ac. 302c.)	4
Chemical Lab'y (Agr. 110)	6
Mathematics (Ac. 405, 406, or 407)	3

GROUP "B"
HORTICULTURE

First Term

Hort. and Hort. Lab'y (Agr. 604, 605)	7
Ent. and Ent. Lab. Ag. 701, 702)	5
Geology (Eng. 403)	2
Military Science (Ac. 603)	1
German (a) (Ac. 306a)	4
Thesis (Agr. 610)	

Second Term

Horticulture and Hort. Lab'y (Agr. 606, 607)	7
Forestry and Forestry Lab'y (Agr. 608)	5
Geology (Eng. 403)	2
Military Science (Ac. 604)	1
German (a) (Ac. 306b)	4
Thesis (Agr. 610)	

Third Term

Horticulture and Horticulture Lab. (Agr. 609)	7
Entomology and Entomology Lab. (Agr. 703, 704)	5
eology (Eng. 403)	2

	H. Wk.
Military Science (Ac. 605)	1
German (a) (Ac. 306c.)	4
Thesis (Agr. 610)	

Electives. The equivalent of at least five hours from the subjects as listed under Group "A."

(a) French or English and Political Economy and one additional subject may be substituted.

GROUP "C," ANIMAL INDUSTRY.

First Term.

Animal Industry (Agr. 807)	2
Animal Industry Laboratory (Agr. 809)	4
Entomology and Entomology Lab'y (Agr. 701, 702)	5
Geology (Eng. 403)	2
Military Science (Ac. 603)	1
German (a) (Ac. 306a)	4
Thesis	

Second Term.

Animal Industry (Agr. 807)	2
Animal Industry Laboratory (Agr. 808)	4
Forestry (b) (Agr. 608)	3
Geology (Eng. 403)	2
Military Science (Ac. 604)	1
German (a) (Ac. 306b)	4
Thesis	

Third Term.

Animal Industry (Agr. 807)	2
Animal Industry Laboratory (Agr. 808)	4
Entomology and Entomology Lab'y (Agr. 703, 704)	5
Geology (Eng. 403)	2
Military Science (Ac. 605)	1
German (a) (Ac. 306c)	4
Thesis	

Electives. The equivalent of at least six hours from the subjects listed under Group "A," or the Third Year Course in Veterinary Medicine.

(a) French may be substituted.

(b) Meat and milk inspection may be substituted.

GROUP "D," AGRICULTURAL CHEMISTRY.

First Term

	H. Wk.
Chem. Lab'y. (Agr. 110)	6
Entomology (Agr. 701, 702)	5
Geology (Eng. 403)	2
Military Science (Ac. 603)	1
German (a) (Ac. 306a)	4

Second Term

Chem. Lab'y. (Agr. 110)	6
Forestry and For. Laboratory (Agr. 608)	5
Geology (Eng. 403)	2
Military Science (Ac. 604)	1
German (a) (Ac. 306b)	4

Third Term

Chemical Lab'y (Ac. 110)	6
Entomology (Agr. 703, 704)	5
Geology (Eng. 403)	2
Military Science (Ac. 605)	1
German (a) (Ac. 306c.)	4

Electives. The equivalent of at least seven hours from the subjects as listed under Group "A."

(a) French may be substituted.

GROUP "E," BOTANY

First Term

German (a) (Ac. 306a)	4
Geology (Eng. 403)	2
Organic Chem. (Agr. 103a)	2
Botany and Bot. Lab'y (Agr. 305)	6
Entomology (Agr. 701, 702)	5
Military Science (Ac. 603)	1
Thesis	

Second Term

German (a) (Ac. 306b)	4
Geology (Eng. 403)	2
Organic Chemistry (Agr. 103a)	2
Bot. and Bot. Lab. (Agr. 306)	6
Military Science (Ac. 604)	1
Thesis	

Third Term

German (a) Ac. 306c.)	4
Geology (Eng. 403)	2
Organic Chem. (Agr. 103a)	2
Bot. and Bot. Lab. (Agr. 307)	6
Entomology (Agr. 701, 702)	5

	H. Wk.
Military Science (Ac. 605)	1
Thesis	

Electives. The equivalent of at least eight hours from the subjects as listed under Group "A."

(a) French may be substituted.

TWO YEAR COURSE IN AGRICULTURE

FIRST YEAR

First Term

Dairying (Agr. 802)	2
Vet. Science (Vet. 102)	5
Chemistry (Agr. 101)	4
English (Ac. 101a)	3
Physiology (Vet. 101)	2
Livestock Management (Agr. 810)	2
Butter Making and Milk Testing (Agr. 802)	
Chemical Lab'y (Agr. 110a)	6
Mechanic Arts (Eng. 301)	6
Military Drill (a) (Ac. 600)	3

Second Term.

Soils and Cultivation (Agr. 202)	2
Vet. Science (Vet. 102)	5
Chemistry (Agr. 101)	4
English (Ac. 101b)	3
Physiology (Vet. 101)	2
Stock Feeding (Agr. 804)	2
Judging Livestock (Agr. 803)	4
Chemical Lab'y (Agr. 110a)	6
Mechanic Arts (Eng. 302)	6
Military Drill (a) (Ac. 600)	3

Third Term

Forage Plants (Agr. 205)	2
Vet. Science (Vet. 102)	5
Chemistry (Agr. 101)	4
English (Ac. 101b)	3
Physiology (Vet. 101)	2
Breeds of Livestock (Agr. 801)	2
Botany and Bot. Lab. (Agr. 301)	7
Farm Practice (Agr. 203, 204)	4
Chemical Lab'y (Agr. 110a)	6
Military Drill (a) (Ac. 600)	3

(a) Special agricultural students who are of age are excused from drill.

NOTE.—In case students in agriculture have conflicts in schedule, satisfactory substitutes will be accepted.

SECOND YEAR.

First Term.

	H. Wk.
Cotton Culture and Grading (Agr. 206)	2
Animal Breeding (Agr. 806)	2
Vet. Science (Vet. 102)	5
Insects (Agr. 701, 702)	5
Agricultural Chemistry (Agr. 105)	3
Bot. and Bot. Lab'y (Agr. 302)	6
Corn (Agr. 204)	2
Cotton (Agr. 206)	4
Chem. Lab'y (Agr. 110b)	6

Second Term.

Miscellaneous Farm Crops (Agr. 212)	2
Stock Feeding (Agr. 804)	2
Vet. Science (Vet. 102)	5
Fruit Growing (Agr. 602)	3
Agricultural Chem. (Agr. 105)	3
Plant Breeding (Agr. 302)	6
Chem. Lab'y (Agr. 110b)	6
Hort. Lab'y (Agr. 602a)	4

Third Term

Farm Management (Agr. 208)	2
Bacteriology (Vet. 108)	6
Insects (Agr. 703, 704)	5
Vegetable Gardening (Agr. 603a)	6
Industrial Chem. (Agr. 102)	3
Diseases of Plants (Agr. 302)	6
Chem. Lab'y (Agr. 110b)	6
Hort. Lab'y (Agr. 609)	4

IN PHARMACY.

FRESHMAN CLASS.

First Term.

English (102a)	3
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 401)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts Laboratory (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term.

	H. Wk.
English (102b)	3
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts Laboratory (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
English (102b)	3
History (Ac. 201)	3
Latin (Ac. 209)	3
Mathematics (Ac. 402)	5
Agriculture (Agr. 801, 201)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts Laboratory (Eng. 303)	6
Military Drill (Ac. 600)	3

SOPHOMORE CLASS

First Term

	H. Wk.
Latin (Ac. 210)	5
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 603)	3
Physiology (Vet. 101)	2
Animal Industry (Agr. 802)	4
Chemical Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
Latin (Ac. 210)	5
History (Ac. 202)	4
Mathematics (Ac. 404)	4
Surveying (Eng. 101)	4
Chemistry (Agr. 101)	4
Drawing (Eng. 603)	3
Physiology (Vet. 101)	2
Animal Industry Laboratory (Agr. 803)	2
Agriculture (Agr. 202)	2
Chemical Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
Latin (Ac. 210)	5
Mathematics (Ac. 404)	4
Surveying (Eng. 101)	4
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Botany and Botany Laboratory (Agr. 301)	7
Physiology (Vet. 101)	2
Agriculture (Agr. 203)	4
Chem. Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

JUNIOR CLASS

First Term

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Bot. and Bot. Lab'y (Agr. 303)	5
Pharmacy (Agr. 401a)	3
Pharmaceutical Laboratory (401b)	3
Pharmacognosy (Agr. 402)	4
Chem. Lab'y (Agr. 110b)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Bot. and Bot. Lab'y (Agr. 303)	5
Pharmacy (Agr. 401a)	3
Pharmaceutical Lab'y (Agr. 401b)	6
Pharmacognosy (Agr. 402)	4
Chem. Lab'y (Agr. 110b)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Bot. and Bot. Lab'y (Agr, 303)	5
Pharmacy (Agr. 401a)	3
Pharmaceutical Lab'y (Agr. 401b)	6
Pharmacognosy (Agr. 402)	4
Chem. Lab'y (Agr. 110b)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

(a) French or German may be substituted.

SENIOR CLASS

First Term

	H. Wk.
Bacteriology and Bact. Lab'y (Vet. 108)	6
Organic Chemistry (Agr. 103a)	2
Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	4
Military Science (Ac. 603)	1
Chem. Lab'y (Agr 110c)	6
Pharmaceutical Laboratory (Agr. 403b	15

Second Term

Bacteriology and Bact. Lab'y. (Vet. 108)	6
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	4
Military Science (Ac. 604)	1
Chem. Lab'y (Agr. 110c.)	6
Pharmaceutical Lab'y (Agr. 403b)	15

Third Term

Therapeutics (Vet. 120)	3
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	4
Military Science (Ac. 605)	1
Toxicology (Agr. 110e.)	6
Urinalysis (Vet. 117)	3
Pharmaceutical Lab'y (Agr. 403b)	15

TWO-YEAR COURSE IN PHARMACY.

FIRST YEAR.

First Term

English (Ac. 101a)	3
Chemistry (Agr. 101)	4
Physiology (Vet. 101)	2
Pharmacy (Agr. 401a)	3
Pharmacognosy (Agr. 402)	4
Chem. Lab'y (Agr. 110a,b)	8
Pharmaceutical Lab'y (Agr. 401b)	6
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (Ac. 102b)	3
Chemistry (Agr. 101)	4
Physiology (Vet. 101)	2
Pharmacy (Agr. 401a)	3
Pharmacognosy (Agr. 402)	4
Chem. Lab'y (Agr. 110a,b)	8
Pharmaceutical Lab'y (Agr. 401b)	6
Military Drill (Ac. 600)	3

Third Term

Botany and Botanical Laboratory (Agr. 301)	7
Chemistry (Agr. 101)	4
Physiology (Vet. 101)	2
Pharmacy (Agr. 401a)	3
Pharmacognosy (Agr. 402)	4
Chem. Lab'y (Agr. 110a,b)	8
Pharmaceutical Lab'y (Agr. 401b)	6
Military Drill (Ac. 600)	3

SECOND YEAR.

First Term

Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	3
Pharmaceutical Laboratory (Agr. 403b)	15
Organic Chem. (Agr. 103a)	2
Chem. Lab'y (Agr. 110c)	6
Bacteriology (Vet. 108)	6
Botany and Bot. Laboratory (Agr. 303)	5
Military Drill (Ac. 600)	3

Second Term

Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	3
Pharmaceutical Lab'y (Agr. 403b)	15
Organic Chem. (Agr. 103a)	2
Chem. Lab'y (Agr. 110c.)	6
Bacteriology (Vet. 108)	6
Botany and Bot. Laboratory (Agr. 303)	5
Military Drill (Ac. 600)	3

Third Term

Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	3

mining and geology, 80; civil engineering, 49; surveying, 183; architecture, 38; descriptive geometry and mechanical drawing, 432; mechanic arts, 375.

College of Agriculture, 282; animal industry, 282; horticulture, 51; forestry, 18; chemistry, 380; entomology, 22; botany,

The Alabama Polytechnic Institute, at Auburn, has just closed one of the most successful school years in the history of that institution, and has fully justified by its work the faith of its builders and supporters.

The influence of the Institute, which teaches boys to work with their heads and

its development for further usefulness with rare pleasure. It is an institution of which the State at large has reason to be proud.

(Mobile Register, May 28th, 1912).

The Alabama Polytechnic Institute

(Montgomery Advertiser, May 27, 1912)

The Alabama Polytechnic Institute

The annual catalogue of the Alabama Polytechnic Institute, just received, makes an exceptional showing for Alabama's famous school of technology. The enrollment in the year now closing totalled 810, which was the best year in the history of the institution. A steady growth in enrollment continues notwithstanding the abolition of the sub-freshman class, which a few years ago contained more students than any other class at Auburn. The abolition of this class was a step towards raising the standard of requirements at Auburn; its abolition has been followed not by a lessening of attendance but by an actual increase in students.

Auburn today is the best equipped technological institution in the South. Its mechanical and educational appliances are unexcelled. And it is equally well-equipped in the equally important matter of men to do the teaching.

The catalogue is a handsome pamphlet of 192 pages, giving full information concerning the institution. There are cuts of the main building, Broun Engineering Building, Chemical Laboratory, Langdon Hall, Carnegie Library, Comer Agricultural Hall, O. D. Smith Dining Hall, and the interior of various departments. The attendance of 810 students is a high-water mark of the institution, and represents every county in Alabama save one, thirteen other states of the Union, and four foreign countries, Germany, Mexico, South Africa and Turkey.

By counties, the largest representations are: Jefferson, 90; Montgomery, 29; Mobile, 23; Marengo, 21; Wilcox, 16; Dallas, 14; Chambers, 14; Shelby, 13; Tallapoosa, 12; Randolph, 10; Bibb, 11; Talladega, 10.

The number of post-graduates is 26; seniors, 98; juniors 137; sophomores, 181; freshmen, 161.

College of Engineering: electrical, 93; mechanical, 101; mining and geology, 86; civil engineering, 49; surveying, 183; architecture, 38; descriptive geometry and mechanical drawing, 432; mechanic arts, 375.

College of Agriculture, 282; animal industry, 282; horticulture, 51; forestry, 18; chemistry, 380; entomology, 22; botany, 196; veterinary medicine, 49; pharmacy, 76; English, 645; histology, 362; mathematics, 581; physics, 477.

The religious statistics for the past year are as follows:

Methodist, 358; Baptist, 267; Presbyterian, 96; Episcopal, 57; Christian, 21; Catholic, 20; Hebrew, 9.

To enter the freshman class, 1912-13, a student will be required to present twelve entrance units to pursue any regular course for graduation.

President C. C. Thach and the members of the Auburn faculty may well feel proud of Auburn's record. The State of Alabama feels a pride in it. The earnest efforts of Auburn for the development of industrial, technical education are having their full measure of success.

(Birmingham Age-Herald, May 27, 1912).

Strong Educational Institution

The Alabama Polytechnic Institute at Auburn is just closing its most prosperous school year. Its student body numbered more than 800, and Alabama was largely represented.

Ten years ago the institute was doing creditable work, but looking back its equipment was entirely inadequate and its achievements were small. Today the institution at Auburn is one of the best equipped for educating young men technically in this country, and in the South few schools of technology are anything like equal to it. It has a large and able faculty and modern mechanical appliances. In both engineering and chemistry it has made wonderful advances

It is reasonable to expect the student body at Auburn for the year 1912-13 to number 1000 or more.

(Birmingham Ledger, May 27th, 1912).

Making a Fine Record

Friends of the Alabama Polytechnic Institute and of the cause of education in the State will be interested in some of the statistics in the annual catalogue of that institution as set forth in another column of this paper. It is gratifying to note the rapid growth of this splendid school. The attendance during the scholastic year just closing was over eight hundred, and it is expected that this will be considerably increased for the coming session. Efforts will be made for a one thousand record.

The Alabama Polytechnic Institute has very largely increased its equipment and facilities for instruction during the last few years, and it is today one of the best schools in all its technical departments in this country. Its reputation as well as its achievements is growing everywhere, and many of its graduates are holding high positions in the technical world and making enviable reputations as engineers, chemists, and in other capacities.

The Ledger congratulates the Alabama Polytechnic Institute upon its growth and success and wishes for it many years of increased usefulness.

(Birmingham News, June 7th, 1912).

Good Work of the A. P. I.

The Alabama Polytechnic Institute, at Auburn, has just closed one of the most successful school years in the history of that institution, and has fully justified by its work the faith of its builders and supporters.

The influence of the Institute, which teaches boys to work with their heads and hands, is already felt throughout the State. No longer can it be said in derision of such institutions of learning that they teach the youth to strike the fire from the heated iron and to practice intensive systems of farming in order that they may become better doctors, lawyers and politicians.

The young men return to their homes in many instances and teach their fathers the lessons they have learned in scientific agriculture and the care and breeding of livestock. Or they take positions in one or the other of the trades and become the more useful artisans because of the carefulness of their training in their chosen calling.

The academic education is not to be decried or discounted, but, after all, it is the workers that this country needs; men with skill and understanding to build up the waste places and to conserve those natural energies which without their genius would go to waste.

Every agricultural high school in Alabama has become a feeder for the Tech at Auburn, and the men trained at the higher institution, in many instances, become the teachers and supporters of the minor institutions which are following a similar line of educational endeavor.

Actual results have demonstrated that the money spent by the State in the furtherance of agricultural and industrial education is the very best investment that the commonwealth makes, with the single exception of the common school expenditures, for the highest duty and the greatest asset of the State is to be found in the development of the efficiency and stability of its citizens.

(Birmingham Ledger, June 5th, 1912).

Large Growth of the A. P. I.

The closing of the year's work of the Alabama Polytechnic Institute and the annual report of the president direct attention again to one of the constructive forces of the State which is contributing largely to the development of the South.

It will be seen from President Thach's report that the equipment of the institution has been very largely increased during the ten years of his direction, the teaching force has been almost doubled, and the attendance has grown a hundred per cent. It may be added that the character and scope of the work of the institution have been materially enlarged and improved, and that the institution itself in every respect has been pitched on broadly progressive lines. Its growth has been marked, and both its field of usefulness and its achievement have been widely developed with larger and better purposes.

The Alabama Polytechnic Institute is contributing generously to the constructive development of the entire South. Its graduates are holding responsible positions with many large industrial enterprises and are engaged with the building and operation of extensive industrial projects. As fast as the men graduate they secure good positions that enable them to put to practical application their training, and they are in demand from many parts of the South and other regions.

The many friends of the Alabama Polytechnic Institute are gratified to note its steady growth both in scope and achievement, and will watch its development for further usefulness with rare pleasure. It is an institution of which the State at large has reason to be proud.

(Mobile Register, May 28th, 1912).

The Attendance at Auburn

The catalogue of the Alabama Polytechnic Institute, a handsome pamphlet of 192 pages, shows that the attendance of 810 students is a high-water mark of the institution, and represents every county in Alabama save one; thirteen other States of the Union, and four foreign countries—Germany, Mexico, South Africa and Turkey. By counties the largest representations are: Jefferson 90, Montgomery 29, Mobile 23, Marengo 21, Wilcox 16, Dallas 14, Chambers 14, Shelby 13, Tallapoosa 12, Randolph 10, Bibb 11, Talladega, 10.

The number of post-graduates is 26, seniors 98, juniors 137, sophomores 181, freshmen 161. College of engineering: electrical 93, mechanical 101, mining and geology 86, civil engineering 49, surveying 183, architecture 38, descriptive geometry and mechanical drawing 432, mechanic arts 375. College of agriculture 282, animal industry 282, horticulture 51, forestry 18, chemistry 380, entomology 22, botany 196, veterinary medicine 49, pharmacy 76, English 645, histology 362, mathematics 581, physics 477. The increasing interest in the study of agriculture, animal industry and horticulture, is a good sign of Auburn's usefulness.

	H. Wk.
Pharmaceutical Laboratory (Agr. 403b)	15
Organic Chem. (Agr. 103a)	2
Toxicology (Agr. 110e)	7
Therapeutics (Agr. 521)	3
Botany and Bot. Lab'y (Agr. 303)	5
Military Drill (Ac. 600)	1

THREE-YEAR COURSE IN PHARMACY.

In the first and second years the same studies are prescribed as in the Two-Year Course.

THIRD YEAR.

Entire Session.

	H. Wk.
Pharmaceutical Chem. and Lab'y (Agr. 405)	20
Chem. and Chem. Lab'y (Agr. 107, 110)	15
Bacteriological Lab'y (Vet. 108)	3

COLLEGE OF VETERINARY MEDICINE AND SURGERY

THREE YEAR COURSE IN VETERINARY MEDICINE

FIRST YEAR.

First Term

	H. Wk.
General Chem. (Agr. 101)	4
Physiology (Vet. 101)	2
English (Ac. 102a)	3
Anatomy and Anat. Laboratory (Vet. 119)	2
Histology (Vet. 104)	5
Live Stock Management (Agr. 810)	2
Chem. Lab'y (Agr. 110b)	6
Military Drill (Ac. 600)	3

Second Term

General Chem. (Agr. 101)	4
Physiology (Vet. 101)	2
English (Ac. 102b)	3
Anatomy and Anat. Laboratory (Vet. 119)	14
Histology (Vet. 104)	5
Stock Feeding (Agr. 810)	2
Chem. Lab'y (Agr. 110b)	6
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
General Chem. (Agr. 101)	3
Physiology (Vet. 101)	2
English (Ac. 102b)	3
Anatomy and Anat. Laboratory (Vet. 106)	14
Embryology (Vet. 105)	5
Judging Live Stock (Agr. 804)	2
Chemical Lab'y (Agr. 110b)	6
Military Drill (Ac. 600)	3

SECOND YEAR.

First Term

Botany (Agr. 304)	2
Pharmacy (Agr 403)	1
Pharmacy Lab'y (Agr. 403a)	4
Veterinary Physiology (Vet. 106)	2
Bacteriology and Bact. Lab'y (Vet. 108)	6
Obstetrics (Vet. 110)	2
Vet. Medicine (Vet. 123)	3
Anatomy and Clinical Laboratory (Vet. 119, 122)	12
Military Drill (Ac. 600)	3

Second Term

Botany (Agr. 304)	2
Pharmacy (Agr. 403)	5
Pharmacy Lab'y (Agr. 403a)	4
Veterinary Physiology (Vet. 106)	2
Bacteriology, Pathology and Lab'y (Vet. 108, 109)	6
Obstetrics and Surgery (Vet. 110, 111)	2
Vet. Medicine (Vet. 123)	3
Anatomy and Clinical Lab'y (Vet. 119, 122)	12
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
Pharmacy (Agr. 403)	1
Pharmacy Lab'y (Agr. 403a)	4
Veterinary Physiology (Vet. 106)	2
Therapeutics (Vet. 120)	3
Surgery (Vet. 121)	3
Vet. Medicine (Vet. 123)	3
Pathology and Path. Laboratory (Vet. 109)	6
Anatomy and Clinic Laboratory (Vet. 119, 122)	12
Military Drill (Ac. 600)	3

THIRD YEAR.

First Term

	H. Wk.
Darying (Agr. 802)	2
Stock Breeding (Agr. 806)	2
Therapeutics (Vet. 120)	3
Surgery (Vet. 121)	2
Veterinary Medicine (Vet. 123)	3
Infectious Diseases (Vet. 113)	2
Meat Inspection (Vet. 115)	2
Anatomy and Clinic Laboratory (Vet. 119, 122)	12
Thesis (Vet. 118)	4

Second Term

	H. Wk.
Surgical Exercises (Vet. 112)	2
Therapeutics (Vet. 120)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Infectious Diseases (Vet. 113)	3
Meat Inspection (Vet. 115)	2
Animal Parasites (Vet. 114)	2
Clinic Lab'y (Vet. 122)	12
Thesis (Vet. 118)	4

Third Term

	H. Wk.
Toxicology (Agr. 110e)	7
Urinalysis (Vet. 117)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Milk Inspection (Vet. 116)	3
Animal Parasites (Vet. 114)	2
Clinic Lab'y (Vet. 122)	12
Thesis (Vet. 118)	4

SCHEDULE OF EXERCISES

Hrs.	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
First—8-9	1. An. Chem. (Min.) 1. Bacteriology 1. Botany 1. Drawing 1. Elec. Engineering 1. German 1. Vet. Medicine (1, 2) 2. Arch. History 2. Bacteriology (1, 2) 2. Drawing 2. Gen. Path. (2, 3) 2. Mech. Eng. 2. Pharmacy 2. Horticultural Laby. 3. Latin 4. Mathematics	1. Elec. Eng. 1. Infec. Dis. (1, 2) 1. Drawing 2. Botany Lab'y (Phar.) 2. Drawing 2. German 2. Graphics 2. Machine Design 2. Mineralogy 2. Obstetrics (1, 2) 3. Agriculture (2, 3) 3. An. Industry (1) 3. Latin 4. Mathematics	1. Botany 1. Drawing 1. Dairy Farming (2) 1. Elec. Eng. 1. German 1. Infec. Dis. (1, 2) 1. Milk Insp. (3) 2. Drawing 2. Mech. Eng. 2. Pharmacy 2. Graphics 2. Vet. Science 3. Ext. Anatomy 3. Latin 4. Mathematics	1. Drawing 1. Elec. Eng. 1. Therapeutics (1, 2) 2. Botany Lab'y (Ph.) 2. Drawing 2. German 2. Mech. Eng. 2. Mineralogy 3. Chemistry 3. Histology 3. Latin 4. Mathematics	1. Botany (Agr.) 1. Drawing 1. Elec. Eng. 1. German 1. Infec. Dis. (1,2) 1. Milk Insp. (3) 2. Drawing 2. Machine Design 2. Pharmacy 2. Theory of Arch. 2. Vet. Science 3. Exterior Anatomy 3. Latin 4. Mathematics	1. Soils (1, 3) 2. Pharmacy 3. Public Speaking Military Drill
Second—9-10	1. An. Ind. Laby. 1. Bacteriology 1. Botany Laby. 1. Calculus 1. Elec. Eng. 1. Surgery (1, 2) 2. Bacteriology (1, 2) 2. Civil Eng. 2. Horticultural Laby. 2. Latin 2. Mining Eng. 2. Gen. Pathology (2, 3) 3. Chemistry 4. English	1. Agriculture 1. French 1. Mech. Eng. 1. Metallurgy 2. Botany Lab'y. (Ph., Agr.) 2. Civil Eng. 2. Elec. Eng. 2. Mach. Design (M.E.) 2. Mining Eng. 3. Desc. Geom. 3. Histology 3. Physiology 4. History	1. Botany Laby. 1. Calculus 1. Pharmacognosy 1. Soils 1. Vet Medicine 2. An. Industry (3) 2. Civil Eng. 2. Elec. Eng. 2. Horticulture (1, 2) 2. Latin 2. Mining Eng. 2. Surgery (3) 3. Chemistry 3. Histology 4. English	1. Forestry (2) 1. French 1. Horticulture (3) 1. Machine Design 1. Mech. Eng. 1. Metallurgy 1. Vet. Medicine 1. Vet. Science 2. Arch. History 2. Botany (Agr.) 2. Elec. Eng. 2. Civil Eng. 2. Mining Eng. 3. Agriculture (2, 3) 3. An. Ind. (1) 3. Histology 4. History	1. Calculus 1. Soils 1. Vet. Science 2. An. Ind. (3) 2. Civil Eng. 2. Horticulture (1, 2) 2. Latin 2. Machine Design 2. Mining Eng. 2. Vet. Medicine 3. Chemistry 4. Latin	1. Arch. Drawing 1. Eng. Chem. 1. Machine Design 1. Soils (1, 3) 2. Arch. Drawing
Third—10-11	1. An. Ind. Laby. 1. Arch. Eng. 1. Bacteriology 1. Botany Laby. 1. Civil Eng. 1. Latin 1. Therapeutics (2, 3) 2. Bacteriology (1, 2) 2. Gen. Pathology (2, 3) 2. Physics 3. English 4. Agriculture (3) 4. Chemistry	1. An. Industry 1. Civil Eng. 1. Elec. Eng. (Min., Mech.) 1. Botany 1. Horticulture 1. Meat Inspection 1. Pharmacognosy 1. Telephone Eng. 2. Agr. and Org. Chem. 2. French 2. Mach. Design 2. Spec. and Bldg. Mtls. 3. An. Ind. 3. Botany (3) 3. Ele. Mechanics (3) 3. History 4. English	1. Arch. Eng. 1. Botany Lab'y. 1. Civil Eng. 1. Eng. Contracts 1. Latin 1. Therapeutics (1, 2) 2. Physics 2. Therapeutics (3) 3. English 4. Agriculture (3) 4. Chemistry	1. An. Industry 1. Botany 1. Civil Eng. 1. Elec. Eng. (Min., Mech.) 1. Pharmacognosy 1. Telephone Eng. 1. Vet. Medicine 2. Chemistry (Agr., Org.) 2. French 2. Practical Mach. 2. Spec. and Bld. Mtls. 3. Botany (3) 3. Ele. Mech. (3) 3. History 3. Histology 4. English	1. Arch. Eng. 1. Civil Eng. 1. Horticulture 1. Pharmacognosy 2. Obstetrics (1, 2) 2. Physics 2. Therapeutics (3) 3. English 4. Chemistry 4. History (3)	1. Arch. Drawing 1. Machine Design 1. Soils (1, 3) 1, 2, 3. Clinics 2. Arch, Drawing 3. Surveying (2, 3) 3. Phys. Lab'y. Chemical Lab'y. Field Work, Civil and Mining Engineering Mechanic Arts Elec. Lab'y.
Fourth—11-12	1. Botany 1. English (1) 1. Pol Econ. (2, 3) 2. Chem., Ind. and Org. 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 2. Vet. Medicine 3. Arch. Drawing 3. Mech. Drawing 4. Agriculture (3) 4. Latin (1, 2) 4. Mechanics Arts	1. Bacteriology 1. Entomology (1, 3) 1. Mental Science 1. Physics 2. Agriculture (1, 3) 2. Animal Industry (2) 2. Chemistry (Org.) 2. Mathematics 2. Pharmacognosy 3. Botany (Vet.) 3. Drawing (Arch.) 3. Drawing (Mech) 4. Latin	1. Botany 1. English (1) 1. Pol. Econ. (2, 3) 1. Therapeutics (Ph.)(3) 2. Chemistry (Ind.) 2. Chemistry (Org.) (2) 2. Gen. Pathology (2, 3) 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 3. Botany 3. Ele. Mechanics (3) 3. History 4. Agriculture (3) 4. Latin (3) 4. Mechanic Arts 4. Physics (1, 2)	1. Bacteriology 1. Botany (Agr.) 1. Physics 1. Mental Science 2. Agriculture (1, 3) 2. An. Ind. (2) 2. Chemistry (Org.) 2. Mathematics 3. Botany (Vet.) 3. Desc. Geom. 3. Physiology 4. Latin	1. Military Science 2. Chemistry (Ind.) 2. Gen. Pathology (2, 3) 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 3. Drawing (Arch.) 3. Drawing (Mech.) 4. Latin (1, 2) 4. Mechanics Arts 4. Physics (1, 2)	1. Machine Design 1. Pharmaceutical Lab'y. 1, 2, 3. Clinics 3. Mechanic Arts 3. Phys. Lab'y Chemical Lab'y Elec. Lab'y Field Work (Civil and Mining Engineering)
Fifth—12-1	1. Agriculture 1. Botany 1. Chemistry (Theo.) 1. Drawing (Arch.) 1. French 1. Meat Insp. 1. Mech. Eng. 1. Mining Eng. 1. Pharmacy 2. English 2. Vet. Physiology 3. Mathematics 4. Drawing 4. Mechanic Arts	1. Forestry (2) 1. Geology 1. Mech. Eng. 1. Pharmacy 1. Therapeutics (1, 2) 2. Arch. History 2. English 2. Vet. Physiology 3. Mathematics 3. Surveying (2, 3)	1. Drawing (Arch.) 1. Entomology (1, 3) 1. Mech. Eng. 1. Milk Inspection (3) 1. Mining Eng. 1. Pharmacy 1. Spec. Pathology (1, 2) 2. Chemistry (Analyt.) 2. German 2. Vet. Medicine 3. An. Industry 3. Mathematics 4. Drawing 4. Mechanic Arts	1. Geology 1. Mech. Eng. 1. Meat Inspection 1. Pharmacy 2. English 2. Graphics 2. Vet. Medicine 3. An. Industry 3. Mathematics	1. Botany 1. Drawing (Arch) 1. Dairy Farming (2) 1. Mech. Eng. 1. Mining Eng. 1. Pharmacy 1. Surgery 1. Theoretical Chem. 2. Military Tactics 3. Histology 3. Mathematics 4. Drawing 4. Mechanic Arts	1, 2, 3. Clinics 3, 4. Mechanic Arts Chemical Lab'y. Elec. Lab'y. Field Work (Civil and Mining Engineering)
P. M.—2-6	1. Entomology (1, 3) 1. Forestry (2) 1. Mech. Laby. 1. Toxicology (3) 1, 2, 3. Anatomy Laby. 1, 2, 3. Chem. Laby. 1, 2. Clinics (1, 2) 1, 2. Drawing (Arch) 1, 2. Elec. Laby. 1, 2. Field Work. 1, 2. Machine Work. 2. Botany (Agr., Ph.) 2. Pharmacy 3. Botanical Laby. (3) 3. Desc. Geometry 3. Mechanic Arts 3. Phys. Laby. 4. Mechanic Arts	1. An. Ind. Lab'y. (2) 1. Horticul. Lab'y. 2. Agriculture (1, 3) 2. Botany (Agr.) (2) 2. Mineralogical Lab'y. 1, 2, 3. Anatomy 1, 2. Clinics 1, 2. Drawing (Arch.) 1, 2. History 3. An. Ind. Lab'y(1, 2) 3. Desc. Geometry 3. Mech. Arts 4. Mechanic Arts Elec. Lab'y. Military Drill	1. An. Ind. Lab'y. 1. Mech. Lab'y. 1. Toxicology (3) 1, 2, 3. Anatomy 1, 2, 3. Chem. Lab'y. 1, 2. Clinics 1, 2. Drawing (Arch.) 1, 2. Field Work 1, 2. Machine Work 2. Botany (Agr.) (1, 3) 2. An. Ind. Lab'y (2) 2. Horticultural Lab'y. 3. Botanical Lab'y. 3. Desc. Geometry 3. Public Speaking 3. Mech. Arts 3. Phys. Lab'y. 4. Mech. Arts Elec. Lab'y Work	1. Agriculture 1. Botany 1. Spec. & Bldg. Mtls. 1. Telephone Lab'y. 1, 2, 3. Anatomy 1, 2. Clinics 1, 2. History 2. Elec. Lab'y. 2. Horticultural Lab'y. 2. Mineralogy Lab'y. 3. Desc. Geometry 3. Mechanic Arts 4. Mechanic Arts Military Drill	1. Horticultural Lab'y. 1. Machine Design 1. Mech. Lab'y. 1. Toxicology (3) 1, 2, 3, Anatomy 1, 2, 3. Chem. Lab'y. 1, 2. Clinics 1, 2. Field Work 1, 2. Mach. Work 2. Botanical Lab'y. 2. Drawing (Arch.) 2. French 2. Graphic Statics (2) 3. Public Speaking 3. Mechanic Arts 3. Phys. Lab'y. 4. Mech. Arts Elec. Lab'y.	

Chapel service daily at 7:45 a. m. *From 4:30 to 5:30 p. m.
Numbers prefixed denote classes—1 denotes senior; 2, junior, etc. Numbers affixed—(1), (2), (3), denote terms.

DESCRIPTION OF COURSES

ACADEMIC COLLEGE.

DEPARTMENTS.

The Academic College comprises the following departments:

Philosophy and Political Economy.
English.
History and Latin.
Modern Languages.
Mathematics.
Physics.
Military Science and Tactics.
Special Pedagogical Courses.

The facilities for instruction together with the laboratory equipment in each department are described under the head of "Laboratories and Facilities for Instruction," pages 9 to 20 of this catalogue.

In addition, students in the Academic College receive instruction in the following departments of the other colleges:

Mechanic Arts.
Drawing.
Geology.
Animal Industry.
Chemistry.
Botany.
Agriculture.

PHILOSOPHY AND POLITICAL ECONOMY.

PROFESSOR THACH.

The senior class pursue the study of intellectual science, twice a week through the year, and political economy twice a week, during the second and third terms. The instruction in this department is by lectures in combination with text-books.

1. Intellectual science: Psychology defined. Value in relation to moral culture, education, and natural sciences. The relation of the soul to matter. The arguments of the materialist. Counter arguments. The faculties of the soul. The nature of consciousness. Sense perception. Fancy. Imagination. Nature of conception. Language. Judgment. Reasoning. Deduction. Induction, etc. Porter's Intellectual Science. *Two hours, entire session.*

2. Political economy: Value; production of wealth; land; labor; capital; division of labor; distribution of wealth; wages; trades unions; tariff; education, etc. Lectures by professor. Ely's Outlines of Economics. *Two hours, second and third terms.*

ENGLISH.

PROFESSOR WANNAMAKER
PROFESSOR WEBB.
ASSISTANT PROFESSOR RUTLAND.
INSTRUCTOR COLLIER.

The mastery of one's native language is a prerequisite to high attainment in any profession. In a technological institute, where only a small number of students can pursue even brief courses in foreign languages, this mastery of the native speech becomes even more essential to future achievements than in classical colleges. This consideration alone would justify compulsory courses in English in technological institutions, but when we add to this the great cultural value of the study of language and literature, the wisdom of such compulsory courses must become obvious. English is required, therefore, in this institution throughout three years and the first term of the fourth year, and is required of all regular students. The study of English comprises drill in grammar and composition, a survey of the history of English and American literature, and intensive study of certain of the greatest periods and authors in English literature.

A thorough review of English grammar is rendered necessary by the inadequate preparation of many of the candidates for admission to the freshman class. The duration of this course depends upon the needs of the class.

Instruction in composition is designed to give the student proficiency in the use of English rather than acquaintance with the principles of formal rhetoric. Text-books are used for the guidance of the classes, but much of the matter contained in these books is of the nature of specimens for study and imitation, and the main purpose of the course is kept constantly clear to the student. Class standing depends primarily upon ability in the use of English.

Literature is studied at first hand. Manuals are mastered by the students, and in historical courses tabular outlines are made by the class for the purpose of impressing chronological and causal relationships upon the memory, but the greater part of the student's time is given to the study of selected masterpieces.

The requirements in English for admission are set forth on page 55. No student is classed as regular in any course leading to a degree until he has met these requirements.

The requirements as to thesis and as to proficiency in English for certificates and diplomas are set forth on pages 60 and 168.

The following courses are offered:

FRESHMAN CLASS.

101. (a) A review of the elements of English grammar: Text-book, Bartlett and McBain's English Grammar. *Two hours, first term.*

(b) A study of the formation of the language and of the meaning of words: Text-book, Anderson's Study of English Words. *Two hours, second and third terms.*

102. (a) Composition and rhetoric: The principles of correct and effective use of English are studied. The students are required to apply these principles in set themes once a week and in frequent class exercises. As often as practicable the instructor holds individual conferences with students to correct, assist, and stimulate them. Text-book to be announced. Reference book required, Woolley's Handbook of English Composition. *Three hours, first term.*

(b) American literature: A study of Bryant, Longfellow, Holmes, Whittier, Poe, Lowell, Lanier. Practice in composition is continued with this course by means of weekly themes dealing with subject matter furnished by the course. Text-book, Page's Chief American Poets. *Three hours, second and third terms.*

SOPHOMORE CLASS.

103. Composition and rhetoric: This course deals with the principles of exposition and argumentation. Students are required to submit weekly themes showing proficiency in these principles. The course is concluded with a lengthy argument based upon data gathered in the library. Text-book to be announced. Reference book required, Woolley's Handbook of Composition. *Three hours, first term.*

104. English Literature: This course consists in the interpretative study of selected poems and critical study of selected prose specimens illustrating the whole of English literature, together with the mastery of a concise history of the literature. Practice in composition is continued with this course by means of weekly themes dealing with subject matter furnished by the course. Text-books, Newcomer and Andrew's Twelve Centuries of English Poetry and Prose; Long's English Literature. *Three hours, second and third terms.*

105. Laboratory. This course is designed for those students in Latin who do not take courses 103 and 104. Lectures are given from time to time on the essential principles of composition, but the emphasis in the course is placed upon practice. Definite exercises are assigned for the application of the principles discussed. Through these exercises, through careful criticism and analysis of models of English prose, and through the instructor's criticism of written work and conferences with the students, the effort is made to form in the students the habit of writing with correctness and clearness. No text-book. Reference book required, Woolley's Handbook of English Composition. *Three hours, throughout the year.*

106. Public speaking: The sophomore class is heard weekly throughout the year in sections of ten, twice for an hour and a half in rehearsal and afterwards in the assembly hall before the student body.

JUNIOR CLASS.

107. In the junior and senior years students pursuing the general course form a section separate from the rest of the class. This section is required to do a greater amount of reading and of written work than the technical students. Each student pursuing a technical course may elect one of the three following courses, but the department reserves the right to omit a course in case only a very small number elect it. The entire

section of general-course students may elect one of the three courses.

(a) Nineteenth-century literature: The first half-year will be devoted to the study of the leading prose-writers of the last century, and the second half-year to the leading poets. A great proportion of the time will be given to Carlyle, Ruskin, Arnold, Dickens, Thackeray, George Eliot, Tennyson, and Browning. Text-books, a history of nineteenth-century literature, to be announced; Carlyle's Sartar Resartus, Heroes and Hero Worship; Hampshire's Selections from Ruskin with Notes; Arnold's Essays, Literary and Critical; Dickens' David Copperfield, Tale of Two Cities, and Christmas Stories; Thackeray's Henry Esmond and Vanity Fair, Scott's Kenilworth; George Eliot's Mill on the Floss and Romola; Page's British Poets of the Nineteenth Century.

(b) English literature from 1750 to 1825: During the first term the origin and growth of the romantic movement will be studied, and readings will be required from Gray, Goldsmith, Johnson, Burke, Cowper, Burns, Thomson, and Collins. The origin of the novel will be briefly discussed, and one novel will be read from Fielding and Richardson each. The second and third terms will be devoted to a study of the romantic movement and close attention will be given to Wordsworth, Coleridge, DeQuincey, Lamb, Byron, Shelley, and Keats. Readings will be required from Scott, Jane Austen, Hazlitt, and Landor. Text-books, Phelps' Beginnings of the English Romantic Movement, Ward's English Poets, Vols. 3 and 4, Burke's Reflections on the French Revolution, Fielding's Tom Jones, Richardson's Clarissa Harlowe, DeQuincey's Confessions of an English Opium Eater, Lamb's Essays of Elia, Scott's Kenilworth, Jane Austen's Pride and Prejudice, Hazlitt's Lectures on the English Poets, Landor's Pericles and Hypatia. *Three hours throughout the year.*

(c) The essay and the novel: The first term will be devoted to a study of the origin and development of the essay. Selected essays representing the seventeenth and eighteenth centuries will be read and much time will be given to the nineteenth-century essay. The second and third terms will be devoted to the study of the history of the novel. One novel will be read from each of the following authors: Richardson, Fielding, Scott, Jane Austen, Dickens, Thackeray, George Eliot. More recent tendencies in prose fiction will be discussed. Each student will be expected to report on one novel in addition to those read by the whole class. Text-books, Cross's

Development of the English Novel; Richardson's Clarissa Harlowe (abridged); Fielding's Tom Jones; Scott's Waverly; Jane Austin's Pride and Prejudice; Dickens' Tale of Two Cities; Thackeray's Henry Esmond; George Eliot's Romola; Select essays, to be announced.

SENIOR CLASS.

Students pursuing the general course form a separate section. For technical students the following course is offered:

108. Shakespeare: The development of the English drama will be reviewed in some history of English literature, and the life of Shakespeare will be included in the matter of the final examination, but the class-room instruction will be devoted to three of the greatest plays of Shakespeare. Three additional plays will be read by the students and written reports on these will be submitted. Text-books, any history of English literature; Dowden's Shakespeare Primer; the plays of Julius Cæsar, Macbeth, The Tempest, King Lear, Hamlet and the Midsummer Night's Dream. *Two hours, first term.*

For general-course students the following course is offered:

109. English literature from 1585 to 1630: Required readings from Greene, Marlowe, Shakespeare, Milton, and Bacon. Study of the principles of the drama. Optional readings from Jonson, Beaumont and Fletcher, Spenser, Herrick, Lyly, Browne, Taylor, Walton, Bunyan, and others. Close study of two of Shakespeare's plays: Hamlet and As You Like It, or Macbeth and Winter's Tale, or Othello and Henry V. *Two hours, first term.*

110. Methods of teaching English. If a sufficient number of students apply to the head of the department, a course in methods of teaching English will be offered, the text-book and hours to be determined later.

GRADUATE STUDENTS.

The following courses have been given to graduate students:

(a) Shakespeare: Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV, Richard III, King John.

(b) Dryden's Poetical Works; Arnold's Dramatic Poesy; Yonge's Essay on Satire; Saintsbury's Dryden; Pope's Poetical Works; Pattison's Satire; Stephen's Pope; Gosse's From Shakespeare to Pope; and Eighteenth-century Literature.

(c) English literature of the eighteenth century: Addison, Pope, Gray, Goldsmith, Burns, Cowper, and Burke.

(d) American literature: Longfellow, Lowell, Poe.

(e) The English essay: Bacon, Addison, Steele, Swift, Johnson, Goldsmith, Macaulay, DeQuincey, Lamb, Carlyle.

(f) Milton's Poetical Works: Life, Pattison, Brooke.

(g) Elizabethan, Jacobean, and Caroline literature: Greene, Jonson, Marlowe, Webster, Beaumont and Fletcher, Browne, Herrick, Bunyan, and others.

(h) English literature, 1832-1894.

(i) Chaucer.

(j) During the year 1912-13 the course will deal with the development of English prose fiction.

THE READING CLUB.

To assist students in forming the habit of systematic reading of the best literature a club will be organized by the department. Each year the works of some one or two authors will be read extensively, and discussed at the meetings of the club. For the year 1912-13 the authors will be Dickens and Thackeray. All students are eligible to membership. The club meets once a month at the home of Professor Wannamaker.

HISTORY AND LATIN.

PROFESSOR PETRIE.
ASSISTANT MILES.
ASSISTANT MOORE.
ASSISTANT OWSLEY.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements, and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts, and maps, with which the department is well equipped. Instruction is given by text-books, lectures, and class discussion, but a constant effort is made to stimulate to wider reading and research in the library. The following courses are offered:

FRESHMAN CLASS.

201. History of the United States: The course consists of lectures and text-book work, and is somewhat advanced. All students who take it must have previously completed some

school text-book on the history of the United States. Text-books: Hart's Formation of the Union, Wilson's Division and Reunion. *Two hours, first and second terms; three hours, third term.*

SOPHOMORE CLASS.

202. History of modern Europe: Required of all members of the sophomore class. Some previous knowledge of the subject is desirable, but not necessary. Text-book: Robinson and Beard's Development of Modern Europe. *Three hours, first and second terms.*

203. Ancient history: An extra course intended for those who are deficient on this subject. Text-book: Myers' General History, Part I. *Once a week, one term.*

204. A brief course in recent history: Not required of any students, but those who expect to take the general course may substitute it for botany or mechanics. Text-books: Robinson and Beard's Development of Modern Europe and current periodicals. *Three times a week, third term.*

SENIOR CLASS.

205. English constitutional history: A course for one year for members of the senior class. Text-book will be announced later.

JUNIOR AND SENIOR CLASSES.

206. Historical laboratory: An opportunity for advanced work in United States history for those students of the general course who elect it as laboratory work, and for any others who are properly qualified.

The chief object kept in view is training in historical research and in the formation of independent but careful opinions based on the original sources of information, as well as on the standard authorities. Emphasis is laid on the importance of securing proper material for investigation, and every incentive is given to the collection and use of new documents, papers, and letters illustrative of Southern, and especially of Alabama history. The method of work is as follows: Informal lectures are given on important and suggestive points, as: The cause of the Revolution; the Constitutional Convention; the War of 1812; the Missouri Compromise; the Monroe Doctrine; Texas and Mexico; the Compromise of 1850; the Kansas Struggle; the Dred Scott Decision; Secession. After each lecture a general discussion follows and topics connected with it are assigned to the students with an outline of the points to be investigated.

The final results are collected by each student according to his own judgment in his note-book, which is then passed in to the professor for correction and suggestion. Text-book: MacDonald's Select Statutes. *Six hours, entire session.*

International Law: A brief course is offered for those students who expect to enter the army or navy. *One hour a week.*

GRADUATE COURSE.

207. Graduate students are expected to take part in the junior and senior discussions, and will also meet with the professor for conference about their work. Each year some special field is taken for investigation and discussion. Those who take history as their major study are expected to devote a large part of their time to research upon some topic upon which they can consult the original sources of information.

208. Teachers' course: Conferences every other week with those students who expect to teach history.

LATIN.

The objects kept in view in this department are: An accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives; an appreciation of Latin literature and an intelligent conception of Roman history and civilization both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation. English passages based on a familiar author or illustrative of special constructions are put in Latin, both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class, a course of reading in English is prescribed descriptive of his life, work, and times. The historical setting and the literary value of his writings are carefully discussed and frequent comparisons are made with modern authors.

In the freshman and sophomore classes the study of the language is the chief point. In the higher classes a broader view is taken. The junior class makes a special study of Roman history and Roman historians. The senior class studies Roman poetry and Roman life.

In the senior class a brief pedagogical course is given during the third term for those who expect to be teachers of Latin. This includes work on the forms and syntax, and in Cæsar and Virgil.

The following courses are offered with the text-books named:

209. Freshman class: Exercises, Cicero, Sallust, or equivalent. Allen and Greenough's Latin Grammar. *Four hours, first and second terms; three hours, third term.*

210. Sophomore class: Livy. Allen and Greenough's Grammar, Bennett's Latin Composition. *Five hours, entire year.*

211. Junior class: Livy, Tacitus, grammar, Roman history, exercises. Allen and Greenough's Grammar, Botsford's History of Rome. *Three hours, entire year.*

212. Senior class: Horace, Plautus, Latin literature, grammar. Allen and Greenough's Grammar. *Three hours, entire year.*

213. Pedagogical course: During the spring term a pedagogical course is given in Latin. It is designed chiefly, but not exclusively, for members of the senior class. It includes a discussion of the methods of teaching forms and syntax, as well as concrete illustrations of the way to overcome difficulties in Cæsar and Virgil.

MODERN LANGUAGES.

PROFESSOR WIATT.

The chief aim in this department is to give the students a thorough and accurate knowledge of the elementary principles of the subjects taught, and to enable him to read with facility the ordinary French and German at sight. To train the ear, acquire a correct pronunciation and some facility in speaking, all recitations are supplemented, as far as practicable, by oral exercises in the languages themselves.

FRENCH.

The following regular courses are given:

JUNIOR CLASS.

301. (a) A course covering the essentials of grammar and pronunciation to enable the student to begin the reading of simple French prose. This course continues through the first term, three hours a week being given to the study of grammar

and one hour to pronunciation and conversation. *Four hours, first term.*

(b) The second term includes a course of reading in simple prose (2 hours a week), and the continuation of grammar with translations of English into French (1 hour a week.) *Three hours, second term.*

(c) During the third term the reading of more advanced selections in prose and poetry is begun (2 hours a week) : grammar and composition (1 hour a week) ; and pronunciation and conversation (1 hour a week). *Four hours, third term.*

SENIOR CLASS.

302. (a) A course in reading: Corneille and modern French plays (2 hours a week) ; laws of grammar and composition (1 hour a week) ; pronunciation and conversation (1 hour a week). *Four hours, first term.*

(b) The second term is given to the study of Racine, and the reading of modern French literature (2 hours a week), and to continued study of the structure and syntactical features of the language in connection with translations into French. *Four hours, second term.*

(c) The third term includes a study of Moliere (1 hour a week) ; the history of French Literature (1 hour a week) ; more advanced work in grammar and composition (1 hour a week), and pronunciation and conversation 1 hour a week). *Four hours, third term.*

303. Teachers' course: During the spring term the work of the senior class will be so modified or supplemented, as to include a short pedagogical course for students who expect to teach French. This will consist chiefly of elementary work in grammar and syntax and a study of the best methods of giving instruction in this subject. *Third term, senior year.*

GRADUATE STUDENTS.

304. Graduate course: Offered for students who wish to pursue the study of French beyond the scope to which a two-year-course necessarily limits them. In addition to the authors studied in the lecture room, a wide and extensive reading of literature is prescribed.

TEXT-BOOKS.

First Year: Aldrich and Foster's French Grammar, and Aldrich and Foster's Reader.

Second Year: Corneille, Racine, Moliere, selected modern French plays, Duval's Histoire de la Litterature Francaise, Fraser and Squair's French Grammar, French Composition.

GERMAN.

The following regular courses are given:

JUNIOR CLASS.

305. (a) A course embracing the fundamental principles of grammar and the essentials of pronunciation leading to the intelligent reading and translation of simple German texts (3 hours a week), and exercises in pronunciation and conversation (1 hour a week). *Four hours, first term.*

(b) In the second term the reading of simple prose is begun (2 hours a week), and grammar and composition continued (1 hour a week). *Three hours, second term.*

(c) Reading of more difficult selections of prose and poetry is begun and continued throughout the third term (2 hours a week.) Grammar and composition continued (1 hour a week), and conversational exercises (1 hour a week). *Four hours, third term.*

SENIOR CLASS.

306. (a) A course of reading in modern German (2 hours a week); structure and syntax of the language with translations into German (1 hour a week); conversation (1 hour a week). This is continued through the first term. *Four hours, first term.*

(b) Schiller (2 hours a week); History of German literature (1 hour a week); composition (1 hour a week). *Four hours, second term.*

(c) German lyrics and ballads (2 hours a week). German literature (1 hour a week), composition and conversation (1 hour a week). *Four hours, third term.*

307. A course for students from the scientific schools, including readings on various scientific subjects, selected to meet the requirements of the class (2 hours a week), grammar and composition (1 hour a week) and conversation (1 hour a week). *Four hours, entire session.*

308. Teachers' course. During the third term in the senior class of German, the course will be so modified, or supplemented, as to include a short pedagogical course for those students who expect to become teachers of this language.

This will consist chiefly of elementary work in grammar and syntax and a study of the best methods of giving instruction in the subject.

GRADUATE STUDENTS.

309. Advanced course: For those students who wish to pursue the study of German beyond the scope to which a two-year course necessarily limits them. Here, in addition to the authors studied in the lecture room, a wide and extensive reading of authors and literature is prescribed.

TEXT-BOOKS.

First Year: Ham and Leonard's German Grammar, Super's Reader.

Second Year: Schiller, Lessing, selected modern German plays, German lyrics, Bernhardt's Deutsche Litteraturgeschichte, Whitney's German Grammar, Harris's German Composition.

MATHEMATICS.

PROFESSOR CRENSHAW.
ASSOCIATE PROFESSOR MESSICK.
ASSISTANT PROFESSOR SHI.
INSTRUCTOR PATRICK.
INSTRUCTOR STOKES.
INSTRUCTOR DONAHUE.
ASSISTANT COLLINS.

The courses and instruction offered in this department are designed to give the student that mental discipline and training in logic which will enable him to think and reason logically; as well as a thorough knowledge of the principles and formulas of pure mathematics and their practical applications in the engineering and other scientific professions.

The courses offered in the different classes in this department are as follows:

FRESHMAN CLASS.

401. Solid Geometry: *Five hours, first term.*
402. Advanced Algebra: *Five hours, second and third terms.*

SOPHOMORE CLASS.

403. Plane Trigonometry: *Five hours, first term.*
404. Advanced Algebra: *Four hours, second and third terms.* [NOTE: Beginning with session 1913-14, Analytical Geometry will take the place of this advanced Algebra.]

JUNIOR CLASS.

405. Analytic Geometry: *Five hours, half year.*

406. Differential Calculus: *Five hours, half year.*
[NOTE: Beginning with session 1914-15, the Junior class will study calculus five hours the entire year.]

SENIOR CLASS.

407. Differential and Integral Calculus: *Three hours, first and second terms.*

GRADUATE STUDENTS.

408. Differential Equations: *Two hours, entire year.*

409. Methods of teaching mathematics: The department offers a course designed for teachers of elementary mathematics, or for those who expect to make this their profession. The elementary branches of mathematics will be reviewed and methods of teaching briefly discussed, keeping constantly in view the co-ordination of the lower branches with the higher. The course will include also a brief *resume'* of the history of the elementary subjects; a critical examination of the extant text-books; and finally, an outline of a course of study in advanced mathematics to be pursued by the teacher. *Hours to be arranged.*

410. Projective Geometry: This course which aims to present the elements of the subject, will be offered to seniors and graduate students in architecture and engineering and to those properly equipped who wish to pursue the subject of mathematics. *Hours to be arranged, third term.*

TEXT-BOOKS.

Wentworth's Geometry, Fine's College Algebra, Wentworth's Trigonometry, Tanner and Allen's Analytic Geometry, Granville's Calculus, Johnson's Differential Equations, Cohen's Differential Equations.

PHYSICS.

PROFESSOR SOUTHALL.
INSTRUCTOR THOMAS.

The complete course of physics extends over four years, and is designed to give, as far as possible, an adequate and correct idea of the methods of physical science and to lay the foundation for subsequent advanced work if (as must often be the case, especially in an institution such as this) the student desires to pursue the subject further or intends to engage in any of the great engineering professions of which physics is so important a basis. The lectures are illustrated by experiments; the students are required to work numerous problems and exercises.

FRESHMAN CLASS.

501. This course is very elementary. The object in view is to make the student familiar with the fundamental principles of physics. (The text-book will be announced later). *Three hours, first and second terms.*

SOPHOMORE CLASS.

502. This is a laboratory course, and deemed especially important for students of engineering, and of great advantage to such as intend to pursue the subsequent higher work in this department. The laboratory exercises are carefully selected, being designed to illustrate the fundamental methods and principles of physics, and, although the work is necessarily more or less elementary, at the same time such accuracy and precision as the conditions admit of are insisted upon, so that the student is expected to acquire a fairly correct idea of modern experimental investigation. The exercises consist of the fundamental measurements of length, mass, density, moduluses of elasticity, pendulum experiments, etc., together with a few more advanced experiments in connection with the similar properties of liquids and gases, and the general phenomena of heat and sound. The student is required to write a careful report of such experiments, entering the results of observation in tabular form, and plotting a curve wherever practicable; also describing the object, apparatus, and method, and noting sources of errors, etc. Great stress is laid upon this requirement, and reports are not accepted unless they indicate that the student has done his best in every way. *Four hours, entire year.*

503. Elementary mechanics: Lectures, text-book, problems and exercises. (Text-book will be announced later). *Three hours, third term.*

JUNIOR CLASS.

504. This is a more advanced course in general physics required of all candidates for a degree. The only preparation needed is a good working knowledge of mathematics through plane trigonometry. The course includes a series of illustrated lectures on the principles of dynamics, as applied to solids, liquids, gases, sound, and heat, in the order named. Written

exercises are required each week. (Text-book to be announced later.) *Three hours, entire session.*

SENIOR CLASS.

505. This course, although more advanced than the junior course, and occasionally employing the higher mathematics, is a continuation of the work of the previous year. It might be called a course in elementary mathematical physics, and the subjects varying from year to year, that are treated in the lectures are such branches of physics as kinematics and dynamics, thermodynamics, electricity and magnetism, geometrical and physical optics, etc. The student is encouraged to solve difficulties for himself, and to read the standard treatises and original memoirs on the various topics that come under discussion. *Two hours, first and second terms.*

506. Astronomy: A brief course of lectures in descriptive astronomy. *Two hours, third term.*

(The text-books in this class vary with the changing subjects, and will be announced by the professor each year).

507. Teachers' course: In the spring term a course will be offered for those members of the senior class who expect to teach physics. Methods of teaching the theory will be discussed and practical training will be given in the use of the laboratory for school purposes.

GRADUATE STUDENTS.

508. Physics and mechanics: This course will be designed to meet the needs of the students who take it. It will include both theoretical and experimental work in more advanced mathematical physics, or in analytical mechanics.

MILITARY SCIENCE AND TACTICS.

COL. B. S. PATRICK, *Commandant.*

Military science and tactics are required by law to be taught at this institution. The law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the school of the soldier, of the company, and of the battalion in close and extended order, in guard mountng, inspections, parades, reviews, etc.

Under section 1225, U. S. Revised Statutes, the college is provided with U. S. magazine rifle, calibre 30, model 1898, and accoutrements.

The following uniform of standard cadet gray cloth has been prescribed for dress: coat and trousers as worn for fatigue at West Point, with dark blue cadet cap. A neat and serviceable uniform can be obtained for fourteen dollars. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is divided into companies. The officers are selected for military efficiency, good conduct, and scholarship. The commissioned officers will be selected from either the senior or the junior class, and promotion will depend on merit and not wholly on seniority.

A band, composed of cadets, furnishes appropriate music at all reviews and parades, and on other special occasions.

A student who has once accepted an office cannot resign it except for reasons entirely satisfactory to the president and the commandant. The resignation of an office will usually not be considered without first placing all the circumstances to the case before his parent or guardian.

Candidates for appointment or promotion may be required to stand an examination. Moral fitness, including demerits, will be considered.

Each company is officered by one captain and two first lieutenants, one second lieutenant, and a proper number of non-commissioned officers. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the president on nomination of the commandant.

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant-General of the U. S. Army, and the names of the three most distinguished in military science and tactics will be inserted in the U. S. Army Register, and published in general orders from headquarters of the army.

The theoretical course in military science and tactics is begun in the junior and continued through the senior year.

The following are the courses prescribed:

600. Military drill: Required of all freshmen, sophomores, and juniors not physically incapacitated to bear arms. *Three hours, entire year.*

JUNIOR CLASS.

601. Infantry drill regulations: *One hour, first and second terms.*

602. Firing regulations for small arms: *One hour, third term.*

SENIOR CLASS.

603. Security and information (Wagner): *One hour, half first term.*

604. Field service regulations: *One hour, half first term and the second term.*

605. Manual of guard duty. *One hour, third term.*

SPECIAL COURSES FOR TEACHERS

The courses described here are practical courses in the methods of instruction and are designed especially for teachers in Alabama schools and for those students who expect to teach after leaving college. They are given under the direction of the various departments by instructors who have had extensive experience in teaching and who are familiar with the existing conditions in the schools in the state. While in a few of the courses the instruction consists mainly of the study of texts on methods and lectures and discussions on methods of teaching specific subjects, in most of them the subject matter as well as the method is given. If there is sufficient demand, any department of the college will offer courses which may be carried on without the formal attention of the professor, in which the reading work will be outlined and supplemented by conferences from time to time. The following courses are offered:

701. In English: This course is planned especially to suit the needs of those who are now teaching English in elementary or secondary schools and those who expect to become teachers of English. It will include discussions of the existing needs in Alabama schools, general instruction in methods of study and presentation of literature, and lectures on practical methods of teaching grammar and composition, together with actual work in this subject. It will also be the purpose of the course to examine various text-books available for instruction in English and to put the student in touch with such books as he will find useful in his work and in his own development. *Two hours, third term.*—PROFESSOR WANNAMAKER, PROFESSOR WEBB, ASSISTANT PROFESSOR RUTLAND.

702. In History: For those who expect to teach history a conference is held once every two weeks. The chief purpose is

to obtain a clear understanding of the practical difficulties that confront teachers of history and to suggest the best ways to meet them. The discussions deal with both American and European history.—PROFESSOR PETRIE.

703. In Latin: During the spring term a pedagogical course is given in Latin. It is designed chiefly, but not exclusively, for members of the senior class. It includes a discussion of methods of teaching forms and syntax, as well as concrete illustrations of the ways to overcome difficulties in Cæsar and Virgil.—PROFESSOR PETRIE.

704. In French and German: During the third term in the senior class of French and German, the courses will be so modified or supplemented, as to include a short pedagogical course for those students who expect to become teachers of these languages. This will consist chiefly of elementary work in grammar and syntax and a study of the best methods of giving instruction in these subjects. *Third term.*—PROFESSOR WIATT.

705. In Mathematics: The department of mathematics offers a course designed for teachers of elementary mathematics, or for those who expect to make this their profession. The elementary branches of mathematics will be reviewed with especial attention to those portions presenting unusual difficulties to beginners, or which deserve emphasis on account of their importance. Methods of teaching will be briefly discussed, and the course will keep constantly in view the co-ordination of the lower branches with the higher. It will include also a brief *resume'* of the history of the elementary subjects; a critical examination of the extant text-books; and finally an outline of a course of study in advanced mathematics to be pursued by the teacher. *The hours will be arranged later.*—PROFESSOR CRENSHAW.

706. In Physics: In the spring term a course will be offered for those members of the senior class who expect to teach physics. Methods of teaching the theory will be discussed and practical training will be given in the use of the laboratory for school purposes.—PROFESSOR SOUTHALL.

707. In library methods: The course offered by the library will have for its object the training of teachers in the formation. care, and use of a school library. Elementary instruction in the principles of dictionary cataloguing and of the decimal classification will be given, followed by a detailed study of reference books, together with practical problems worked out in the library. In addition there will be lectures on library organ-

izaton and equipment, the routine work of a small library, and the selection and ordering of books. *Hours to be arranged.* Miss Virden.

708. In Manual Training: Courses in elementary wood work and iron work are offered. These courses will be adapted as far as possible to the individual needs of those taking the courses and in addition to the shop work will include lectures and conferences on the organization of courses and the equipment of shops for manual training. *Hours to be arranged.*—Professor Wilmore.

709. In Physical Geography: In this course in general geology will be found much that is especially applicable to physical geography. It takes up a study of subterranean and surface agencies both as to their destructive, and constructive processes. The results of these processes are then taken up in a study of the topography of the surface of the earth under the following heads: The geographic cycle; land sculpture; topography as determined by faults and joints; adjustment of rivers; seacoasts; mountain ranges. *Two hours, first and second terms.*—Professor Brown.

710. In Drawing and Descriptive Geometry: A course in the methods of teaching drawing and descriptive geometry is given to those who wish to prepare for teaching these branches. This course includes advanced work in the form of problems, supplemented by frequent conferences with the instructor, a full bibliography of works on the subjects, and an extended course in reading. Those who desire to avail themselves of an opportunity to practice the teaching of the subjects, may be permitted to attend the meetings of the large classes in elementary work for the purpose of observing methods of teaching. Those who show sufficient preparation may be allowed to assist in tutoring delinquent students and those who enter conditioned. Special attention is given to the subject of drawing as taught in high school work.—Professor Fullan.

711. In Chemistry: In this course, students who have had the necessary preliminary work in chemistry will be afforded the opportunity of taking laboratory practice in experimental chemistry for lecture purposes and for the purpose of the practical study of methods of handling classes in experimental laboratory work. Advanced students can also take the course in the history of chemistry which is provided in the senior year of the course in chemistry and metallurgy. *Hours to be arranged.*—Professor Ross.

712. In Biology (in botany and zoology): This course embraces practical and detailed work in biology, including both laboratory practice and class work in the principles of botany and zoolology as well as instruction in the methods of teaching these subjects. It is especially arranged for those who expect to teach botany and zoology in the public schools. and will be supplemented by independent reading and work assigned from time to time and by conferences with the instructor. *Hours will be arranged.*—PROFESSOR LLOYD.

713. In agriculture: Methods of teaching agriculture. This is a course of lectures and laboratory and field exercises intended to meet the needs of those who expect to teach agriculture or nature study in the common schools and agriculture in the high schools. Special attention is given to plans for school gardens and the selection of material for illustrating the principles of agriculture, and practice will be given in conducting a number of simple demonstrations. Frequent excursions will be made to the fields.

Lectures and laboratory, *one hour each, third term.*

Teachers and those who are preparing to teach are advised to take as many of the courses in agriculture as their time permits. It is especially desirable that those intending to take the teachers' course shall have previously taken *Agriculture 203,* or its equivalent.—PROFESSOR DUGGAR.

714. In physiology and hygiene: The department of physiology and veterinary medicine can give the following course of instruction to prospective Alabama teachers:

(a) Structure of human body and animals.
  (1) Study of cells, tissues, and organs.
  (2) How to use the smaller animals in taking naked eye anatomy.

(b) Physiological actions of the different parts and products of the animal and the human body. This embodies:
  (1) Functional tests.
  (2) Chemico-physiological tests.
  (3) Physico-physiological tests.

(c) Hygiene, embracing instruction in personal health problems.

(d) Sanitation, including health conditions of cities, homes, public buildings, farms, barns, dairies, etc.

(e) Care of animals on the farm and in the city.—PROFESSOR CARY.

715. In horticulture and school gardening: This course embraces instruction in nature study, the use of school gardens, and elementary landscape gardening. Though the course is largely practical in its nature, much attention is given to the methods of teaching elementary horticulture, the use of texts, and experiments suitable for elementary and high school grades. *Hours to be arranged.*—PROFESSOR WILLIAMS.

COLLEGE OF ENGINEERING AND MINES.

DEPARTMENTS.

The College of Engineering and Mines comprises the following departments:

Civil Engineering.
Electrical Engineering.
Mechanical Engineering.
Mining Engineering.
Architecture.
Mechanical Drawing and Machine Design.

The facilities for instruction together with the laboratory equipment in each department are described under the head of "Laboratories and Facilities for Instruction," pages 9 to 20 of this catalogue.

In addition, students in the different departments of the College of Engineering and Mines receive instruction in other departments of the Institute as follows:

English.
Mathematics.
History and Latin.
Modern Languages.
Physics.
Chemistry.
Military Science and Tactics.

CIVIL ENGINEERING.

PROFESSOR MITCHAM
ASSISTANT BLUMENFELD.
ASSISTANT HENDERSON.

The following courses are offered in this department:

SOPHOMORE CLASS.

101. Theory of surveying: Instruction in this subjject will include a course of lectures on construction, use, adjustment, and care of instruments; determination of true meridian; farm surveys; government land survey system; azimuth traverse; repetition traverse; balancing survey; theory of stadia measurements; differential and profile leveling; plane table surveys; topographical surveys. *Two hours lectures and two hours field work, second and third terms.*

102. Plane surveying and leveling: A longer course for civil and mining engineering students. Instruction covers: Construction, adjustment, use and care of instruments; standardizing tapes; determination of true meridian and magnetic declination; United States public land survey system; methods of retracing old land lines; farm surveys by various methods; plotting and calculating areas; dividing lands; surveying and plotting existing roads and streets; laying out townsites and establishing permanent monuments for same; differential leveling; profile leveling; cross-section leveling; terracing; staking out and giving grades for sewers, ditches and drains; staking out buildings, etc.

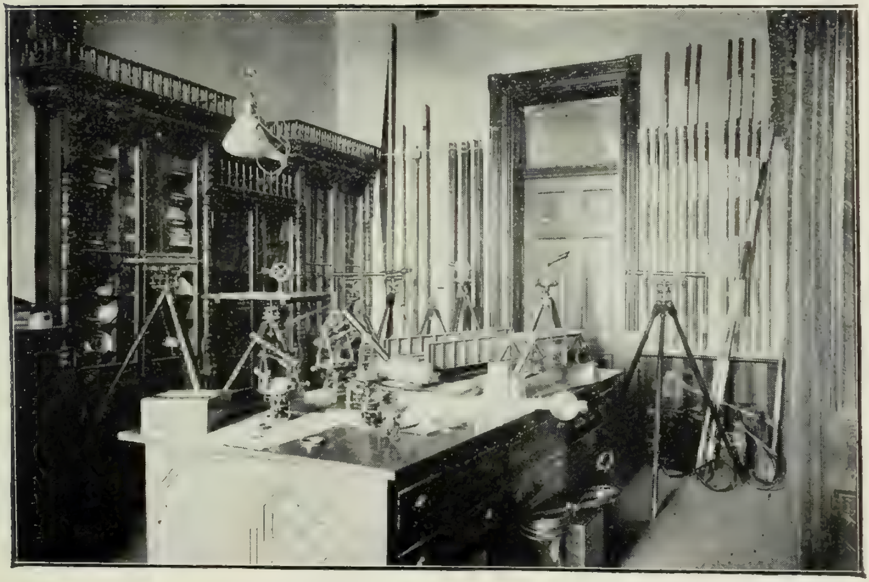
(To be offered 1913-14.) *Lectures and recitations two hours; field work two hours; first term.*

103. Topographic and hydrographic surveying: For civil and mining engineering students. Instruction covers; topographic surveys by pacing distances; leveling with hand level; taking bearings with pocket compass; surveys with altitude-azimuth instruments; surveys with transit, chain and level, and topography with hand level; triangulation; theory of stadia measurements; topographic surveys with stadia; plane table surveys; topographic maps; hydrographic surveys, maps and charts.

(To be offered 1913-14.) *Lectures and recitations, two hours; field work, two hours; second term.*

104. Railroad surveying: For civil and mining engineering students. Instruction covers theory of simple, reversed and

Architecture



Civil Engineering

compound curves, turnouts and crossings, and the railroad spiral. In this course theoretical and practical instruction are combined to the best possible advantage.

(To be offered 1913-14.) *Lectures and recitations, two hours; field work, two hours; third term.*

105. Surveying between sophomore and junior classes: This course is given in the summer camp immediately after commencement, and requires 60 hours a week for four weeks. The purpose is to give the student uninterrupted instruction and practice in the solution of practical problems in surveying similar to those that he will meet early in his life work; and the course is in line with the policy of the institution to combine theory with practice in all its branches of instruction. The work given includes: retracing land lines of the United States land surveys; survey of a farm by compass, deflection angle traverse, and azimuth traverse; problems in divisions of land; topographic survey of a given area; triangulation; plane table survey; differential leveling; preliminary survey of a short line of railroad; profile leveling. Students are required to make notes of all work done by the party in which they work and to make all necessary computations, plots, maps, and profiles connected therewith. This course is required of all sophomores who are candidates for a degree in civil or mining engineering.

JUNIOR CLASS.

106. Railroad surveying: A course of field and office instruction covering: problems in location to fit given ground, spirals being used wherever good practice would require them; fixing grades in reference to economy in construction and operation; approximate estimates of quantities from profiles; cross-sectioning and calculation of excavation and embankment; overhaul; borrow pits; planning and staking out bridges, trestles, culverts, and other structures involved in railroad construction. *Six hours, first term.*

107. Roads and pavements: In this course five hours a week is devoted to class room instruction in: economic principles involved in road improvement; analysis of resistance to traction; location, grades, and drainage of new roads; relocation and improvement of existing roads; construction and maintenance of earth roads, gravel roads, macadam roads; bituminous materials in road construction; street plans of cities and towns; width and grades of streets; curbs and gutters; construction of the various kinds of street pavements; comparative merit of various pave-

ments; construction of sidewalks; street drainage. *Five hours, first term.*

108. Road materials laboratory: Three hours a week during the second term is devoted to the study and testing of the various materials used in the construction of roads and pavements. The purpose of the course is to allow the student an opportunity of becoming acquainted with the physical properties, relative merits, and methods of testing the various materials rather than to have him perform exhaustive research work. *Three hours, second term.*

109. Road and street improvements: Field and office practice in making surveys, plans and estimates for road and street improvements. *Six hours, third term.*

110. Mechanics of materials: This course is intended to acquaint the student with the physical and mathematical ideas underlying the mechanics of materials and to prepare him for his future work in theory of structures and structural design. The discussions cover conditions of equilibrium; definition of stress and strain; modulus of elasticity; tensile and compressive stresses; stresses beyond the elastic limit; resilience; shear; riveted joints; beams; columns; torsion; center of gravity; moment of inertia; repeated stresses. *Five hours, second and third terms.*

111. Graphic statics: Instruction covers fundamental conditions of equilibrium; composition and resolution of forces; construction and nature of equilibrium polygon; graphical determination of stresses in framed structures; bending moments and shears in beams and pins; center of gravity of given sections; moment of inertia. *Three hours, second term.*

112. Structural drafting: The purpose of this course is to acquaint the student with the details of structural steel work, to train him in neat and accurate execution of drawings, and to teach him in a practical way to solve some of the simpler problems in structural mechanics. *Five hours, entire session.*

SENIOR CLASS

113. Theory of structures: The purpose of this course is to teach the fundamental theories underlying the design of bridges, roofs, and other framed structures of metal and timber. The discussions cover: outer and inner forces; concentrated live load systems; design of beams; plate girders; simple trusses; bridge trusses with secondary web systems; trusses with multiple web systems; lateral and portal bracing; transverse bents; viaduct towers; cantilever bridges; three hinged arches; design of col-

umn and tension members; pin joints; riveted joints. *Five hours, first term.*

114. Structural design: This is a course in the practice of bridge and structural design, and is the complement of course 113. Complete designs for a number of structures are worked out. *Nine hours, first and third terms.*

115. Railroad engineering: The discussions cover: the inception, promotion, organization, and construction of railroads, and the duty of the engineer, allignment and grades; rails; rail fastenings; crossties, ballast and road-bed; culverts, bridges, and minor structures; turnouts; side tracks and yards; terminals; elevation of outerrail; signaling; the locomotive and its work; locomotive and grade problems; railroad expenditures; relation of operating expenses to number of trains, effect of rise and fall, distance, and curvature on train mile costs; railroad location, construction and betterment surveys. *Lectures and recitations, three hours, first term.*

116. Theoretical hydraulics: The discussions cover: fluid pressures; equilibrium of floating bodies; fundamental principles of hydromechanics; methods of measuring the flow of water; Pitot tube; venturi meter; orifices; tubes sluices, nozzles; fire hose; weirs; float measurements; current meter measurements; flow in pipes; flow in open channels; flow in sewers and conduits; dynamic action of flowing water; impulse wheels; turbines of various types; centrifugal pumps. *Lectures and recitations, five hours, second term.*

117. Practical hydraulics: This course is the complement of course 116 and its purpose is to allow the student to come into closer touch with the practical side of hydraulics. The work includes determination of coefficients of orifices, weirs, and tubes; loss of head in pipes; coefficient nozzles; flow in open channels, sewers and conduits; tests of turbine and reciprocating pumps; meter tests; leakage surveys of waterworks; guaging streams; design of small water power development; visits of inspection to hydro-electric power plants under construction and in operation with reports on same. *Three hours, third term.*

118. Concrete construction: Consideration is given to the mathematical theories underlying the design of reinforced concrete beams, columns, slabs and arches; and also to the practical design and constructions with both plain and reinforced concrete. *Lectures and recitations, three hours, second term.*

119. Masonry and foundations: Stones for building and decoration; stone cutting; construction of the several classes of

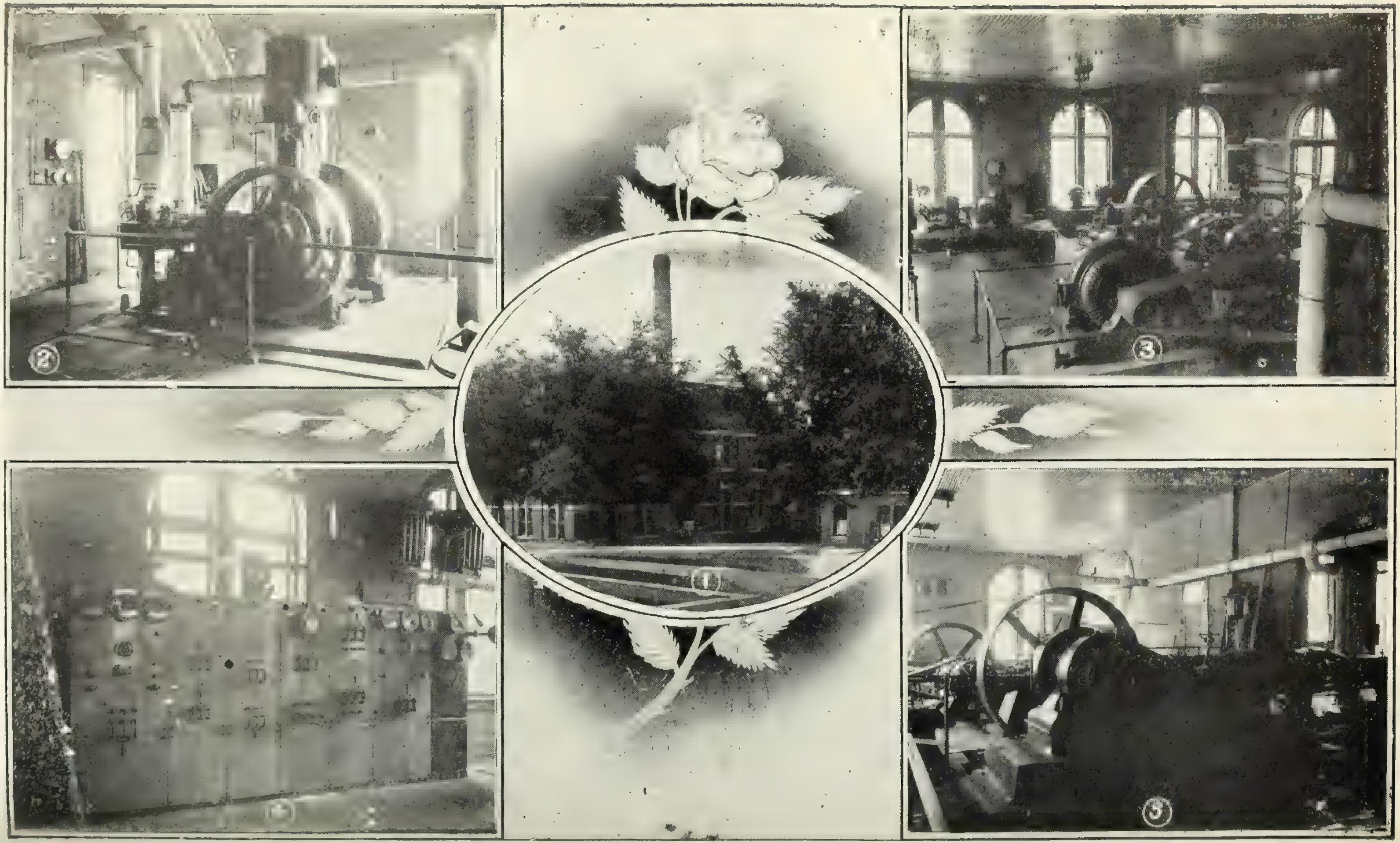
stone masonry; brick masonry; manufacture of common brick; stone and brick arches; retaining walls; piers and abutments; shallow foundations; coffer dams; crib foundations; pile foundations; pneumatic caissons; freezing process; cylinder piers. *Lectures and recitations, three hours, third term.*

120. Sanitary engineering: Discussions cover history of sanitary science; sanitary measures necessary for the prevention of zymotic diseases; the engineer's part in the campaign for preventing disease; the sources of water supply, its collection, purification, the distribution of sewers; pumping of sewage; crossing streams; sewage treatment plants; sewage farms; collection and disposal of garbage and rubbish; street cleaning. *Lectures and recitations, five hours, third term.*

121. Thesis: Each candidate for a degree in civil engineering is required to prepare a thesis upon some engineering subject which he may select. It shall show the results of original investigation of some engineering subject; or it may be some original design for some engineering project or structure. The subject of the thesis shall be announced on or before October 1st., and shall be completed and submitted to the professor of civil engineering by April 15th, following. During the first term the candidate shall not devote less than four hours a week to the reading and collecting data for his thesis; and during the second term he shall not devote less than nine hours a week to such work. He is required to submit on Monday morning of each week a written statement of the time devoted to his thesis during the preceding week and the nature of the work done.

COURSE FOR GRADUATE STUDENTS.

122. Graduate engineering course: This course will require three hours a week to be devoted to lectures and recitations and five hours a week to field and drafting room work throughout the session. The subjects studied will be varied to suit the needs of those taking the course.



Power House Views

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN.

ASSOCIATE PROFESSOR HILL.

ASSISTANT WOOTEN.

Courses of instruction offered:

JUNIOR CLASS.

201. Elementary theory of electricity and magnetism: A detailed study of the fundamental phenomena and laws of the subject. *Three hours, first term.*

202. Direct current machinery: Lectures and recitations on the principles of design, construction, installation, and operation of direct current generators and motors. This course treats in detail of the selection of machinery for given conditions, performance guarantees, acceptance tests for heating, regulation, efficiencies, etc., parallel running, troubles and remedies, and repairs. A large number of carefully selected problems are assigned for solution and every effort is made to have the course cover not only the fundamental principles but also the broader engineering problems connected with the choice and use of this class of machinery. *Three hours, second term.*

203. Central station appliances and distribution for lighting and power service by direct currents: This course treats in detail of switch boards and appliances, calculation of circuits of various kinds, arc and incandescent lighting, metering, systems of charging for service, economics of generating plants. *Three hours, third term.*

204. Elementary theory of electricity and magnetism: For non-electrical engineering students. This course is similar to course 201, though not so detailed in treatment. *Two hours, first and second terms.*

204-a. The construction and operation of both direct and alternating current machines; tests for efficiency, regulation and heating; the generation and distribution of electric power. In this course, it is intended to cover the application of electricity to the operation of machinery. For non-electrical students. *Two hours per week, third term.*

205. Electrical measurements and tests: For students in electrical engineering and mechanical engineering. The course consists of lectures and recitations upon the measurements of current, voltage resistance, capacities, magnetic measurements, stray

power, brake tests, heat runs, and related subjects. *One hour, entire session.*

206. Laboratory work: For students in electrical engineering and mechanical engineering. The course consists of galvanometer work, resistance measurements of various kinds, magnetic measurements and various tests. *Four hours, first term.*

207. Laboratory work: For students in electrical engineering and mechanical engineering. This term is devoted to the operation of direct current motors and dynamos, characteristics of direct current machinery, methods of adjusting, compounding, etc. *Fours hours, second term.*

208. Laboratory work: For students in electrical engineering and mechanical engineering. Efficiency tests, location of troubles on machine and line, switch boards and appliances, and general experience in the operation of a direct current station, are given. *Four hours, third term.*

SENIOR CLASS.

210. Theory of alternating currents: Lectures, recitations, and problems upon the phenomena of alternating current circuits, inductances, etc. This course is introductory to the subject of alternating current machinery, and in order to take it, students must have a fair working knowledge of differential and integral calculus and vector algebra. *Five hours, first term.*

211. Alternating current machinery: Lectures and recitations upon alternating current generators, calculation of alternator voltage regulation by various methods, parallel running, transformers, induction motors, single phase commutator motors, synchronous motors, rotaries, etc.; harmonic analysis of wave forms, the expression of the same in Fourier series and calculation of the current produced in various circuits.

The course is somewhat advanced and in order to take it satisfactorily students must have a good knowledge of the mathematical theory of alternating currents. *Five hours, second term.*

212. Transmission lines: Lectures and recitations upon line inductance and capacity, the application of hyperbolic functions to the calculation of the regulation of long transmission lines, effect of harmonics in E. M. F. waves, surges, etc. Stresses in conductors, line construction and related topics. *Five hours, third term.*

213. Laboratory work: Operation of alternating current machinery, determination of data for calculation of alternator regulation, direct determination of regulation, efficiency tests, trans-

former connections, transformer testing for efficiency and regulation, induction motor testing, circle diagram. Brake tests, single phase induction motors, synchronous motors, V-curves, rotaries, synchronizing, etc. The work during the third term consists chiefly in the determination of data for the student's thesis. *Four hours, entire session.*

214. Electric railway engineering. A detailed study of the subject of street and interurban electric railway service covering train resistance, grades, curves, line and track, car and power plant equipment, both direct and alternating currents, sub-station, single phase equipment, and related topics.

The course consists of recitations and lectures with constant reference to current numbers of various technical journals. *Two hours per week, second and third terms of the senior year.*

215. Telephone engineering: History and development of telephone types, designs of telephone parts, sub-station equipment, magneto and common battery switch boards, exchange equipment, telephone power plants, over head and under ground circuits, protectors, coin collectors and meters, party lines, private branch exchanges, first and intercommunicating systems, trunking, and toll boards, *Two hours, second term.*

216. Telephone laboratory: Details of telephone constructions, association of parts, assembly of switchboard parts, storage batteries, tests for location of faults in cables and lines, capacity and insulation tests, details of common battery and magneto switch boards, trunking-schemes, etc. *Two hours, first and second terms.*

217. Electrical engineering: For senior mechanical engineering students. Direct current motors and generators, street railways, circuits, alternating currents, and alternating current machinery. This course is less detailed than the courses for electrical engineering students, but aims to cover the field in a more generalized manner. *Three hours, first term.*

218. Laboratory work: For seniors in mechanical engineering. This course is given in connection with course 217, and gives practice in the operation and testing of electrical machinery of various kinds. *Four hours, first term.*

219. Contracts and specifications: For seniors in the courses of electrical enginering and mechanical engineering. Lectures and recitations upon engineering specifications and the elements of the laws of contracts. Considerable time is devoted to exercises in writing specifications covering machinery and engineering projects. These specifications are read to the class and the students are required to offer criticism on each set. *Two hours, third term.*

MECHANICAL ENGINEERING.

PROFESSOR WILLMORE.
INSTRUCTOR STOKES.
INSTRUCTOR MITCHELL.
INSTRUCTOR HIXON.
ASSISTANT MCCAHREN.
ASSISTANT ASKEW.

The following courses are offered in this department:

FRESHMAN CLASS.

301. Shop work—carpentry: The lessons include instruction in the nature and use of tools; instruction and practice in shop drawing; elementary work with the plane, saw, chisel; the construction of different kinds of joints, timber splices, cross joints, mortise and tenon, mitre and frame work, and dove tail work, comprising the different joints used in cabinet work, and examples of framing roof trusses. Students who have had previous experience in the use of tools or who show special proficiency, are given work of an advanced character. *Six hours, one term.*

302. Shop work—wood turning: The instruction includes the nature and use of the lathe and the tools, and the lessons comprise plain, straight turning, caliper work to different diameter and lengths, simple and compound curves, screw plates and chuck work, hollow and spherical turning. *Six hours, one term.*

303. Shop work—pattern making: The course includes work in whole and split patterns in wood for solid and cored castings, and core boxes for producing the necessary cores. The characteristics of the different kinds of timber used for patterns are studied, and attention is called to allowances necessary for shrinkage and draft. The patterns are intended to be used by the students in their subsequent work in the foundry. *Six hours, one term.*

SOPHOMORE CLASS.

304. Shop work—forging: A text-book is used from which is learned something of the characteristics of the metals and the best methods of working them. The lessons are so arranged as to make the student familiar with the handling of the tools and the successive steps in working metals by hand. Exercises in drawing, upsetting and bending, cutting, punching, and welding by various methods, are given, together with a

Telephone Laboratory

Electrical Laboratory

course in steel forging, including hardening, tempering, and case hardening. *Four hours, first term.*

305. Shop Work—foundry: Required of all students except those taking agriculture and English laboratory. The work for the most part consists of small articles, such as light machine parts and the stock pieces used for the exercise work in the machine shop. A sufficient variety is introduced for the student to acquire a good general knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand in two part flasks, but some core work and more complicated work is introduced to illustrate the processes, as well as to furnish the castings for the advanced work in the machine shop. Instruction is given in operating the cupola, and from time to time lectures and recitations are held on the metallurgy and working of the metals used in the industrial arts. *Four hours, second and third terms.*

JUNIOR CLASS.

306. Elementary mechanics: Required of students in engineering courses. The fundamental laws of mechanical science are studied while special attention is given to the practical applications of these principles to engineering work. *Three hours, second term.*

307. Strength of materials: Required of students in the courses of mechanical engineering, electrical engineering, and mining engineering. The general properties and characteristics of cast iron, wrought iron, and steel are studied, and an elementary treatment of the strength of these materials in the forms of beams, girders, columns, and shafts is given. The text-book work is supplemented by lectures and many practical problems are worked out. *Three hours, third term.*

308. Practical mechanics: Required of students who take machine shop work. The instruction consists of recitations and lectures on general machine shop work. The construction, use, and limitations of the various machine tools, the forms of cutting tools and methods of grinding them, and the form and use of jigs and gauges, are studied, together with instruction in machine management, and time and cost keeping. *One hour, entire session.*

309. Shop work: Required of students in the courses of mechanical engineering and electrical engineering. This work is divided into two parts:

(a) A course of chipping and filing. The lessons comprise work on cast iron and wrought iron, and consist in chipping to line on flat and curved surfaces, key seating, filing, and finishing to line, surface filing, slotting, pin and screw filing, and surface finishing with scraper.

(b) A course in machine work. The materials worked on include cast iron, wrought iron, steel and brass. Exercises are given in turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling in the lathe and drill press, reaming, boring, screw cutting in lathe and with taps and dies Practice is given in working the planer, shaper, and milling machine. In the last part of the year, some work in tool making is given, such as making taps, reamers, and milling cutters. Some sort of construction or repair work for the department is always on the shop floor and students who are well advanced in their work have opportunity to gain additional practice and experience by assisting with this. *Six hours, entire session.*

310. Shop work: Required of students in the course of mining engineering and elective for juniors in the course of civil engineering. The work includes courses (a) and (b) as described in course 309 just preceding, except the amount of work required is less in proportion to the time consumed.

All shop work is done from blue prints and blackboard sketches. For the preliminary exercise work, special instruction sheets are prepared and given out to each student with the stock for the exercises. These sheets explain in detail each step in the process of producing the exercise, and are intended to supplement the individual instruction of the instructor. In the construction work it is the purpose to select some simple machine and build two or more of them on the interchangeable system. Jigs and templates are built to accomplish this result as far as possible. A system of time keeping is in force in the shop. At the end of the week each student makes out his time card, describing the work he has done during the week, and giving the number of hours spent on each job. *Four hours, entire session.*

SENIOR CLASS.

311. Power plant engineering: Required of students in the courses of mechanical engineering and electrical engineering. The work of the course consists of a study of the practical applications of steam machinery. It is believed that a thorough knowledge of the apparatus in actual practical use is the best preparation a student can have for the study of the theory, and

to that end, the different types of engines, boilers, pumps, condensers, and other auxiliary apparatus are taken up and studied in detail, and the advantages of each are discussed. Extensive files of manufacturers' catalogues are kept, and the technical papers and magazines in the library are freely used in order to keep in touch with the latest and best practice in engineering work. *Five hours, first term.*

312. Thermodynamics: Required of students in the courses of mechanical engineering and electrical engineering. The subject is first studied from the ideal standpoint, and later the applications are made to hot air engines, gas and gasoline engines, and steam engines, and also to air compressors and refrigerating machines. The temperature-entrophy method of analysis is used in explaining heat transfers, and in general, graphical methods are used in preference to analytical ones when they can be made to serve the purpose equally well. In this course will be given instruction in indicator practice and the interpretation and working up of indicator diagrams from steam engines, gas engines, air compressors, and refrigerating machines. *Five hours, second and third terms.*

313. Heating and ventilating: The different methods of heating and ventilating buildings are treated. A study is made of the relative efficiency of hot water, steam, and warm air as mediums for heating different kinds of buildings, and special attention is given to the design and operations of healthful heating systems for residences. *Two hours, first term.*

314. Gas engines: This is a descriptive course, and gives attention to the construction and operations of gas engines and gas producers as used in modern power plants. The rapid development of the gas engine in recent years warrants a more extended treatment of this subject than can be given in the usual course of thermodynamics, and the above is offered as supplementary thereto. The subject will be presented by text-book, lectures, manufacturers' catalogues and drawings, and student reports on current articles of interest. *Two hours, second term.*

315. Mechanics of materials: The properties and characteristics of the materials of engineering construction are studied, and the development of the methods of calculatng their strength under different conditions of stress is explained. Many problems involving the strength of beams, girders, columns, and shafts are worked out. *Three hours, first term.*

316. Materials of machines: Attention is given to the methods of manufacture and the uses of the materials which are employed in engineering construction. Special attention is given to the lat-

est methods of manufacture of iron, steel, and cement, the work being presented by text-book, lecture, lantern slides and manufasturers' catalogues. *Three hours, third term.*

LABORATORIES.

JUNIOR CLASS.

317. Summer course: Required of juniors in the courses of mechanical engineering and electrical engineering. The work will consist in the adjustment and calibration of instruments used in engineering work, and the adjustment and operation of gas, gasoline, and steam engines. Tests will be made to determine the efficiency of mechanisms such as hoists, jack screws, gearing, belts, and other transmission devices, together with some work in valve setting and power measurement of steam engine. Complete and accurate written reports of each experiment are required. *Twenty hours per week for two weeks, beginning the week following commencement.*

SENIOR CLASS.

318. Laboratory: Required of students in mechanical engineering and electrical engineering. This work includes fuel analysis and heat determination, flue gas analysis and study of combustion, oil and lubricant testing, and valve setting and indicator card analysis. *Four hours, first term.*

319. Laboratory: Required of students in mechanical engineering and civil engineering and optional in electrical engineering. The course includes work in testing the strength of materials, as iron, steel, wood, and cement in tension, compression, and transverse loading, and the calibration of weirs, nozzles and meters, a study of the flow of water in pipes, and the testing of hydraulic motors and pumps. *Four hours, second term.*

320. Laboratory: Required of students in mechanical engineering and electrical engineering. The work includes tests of engines, boilers, pumps, gas and gasoline engines, complete power plants, and when opportunity offers, tests of commercial power plants. *Four hours, third term.*

GRADUATE STUDENTS.

321. Laboratory: This work is arranged to suit the work being carried by the students, and the hours are adjusted to suit their available time.

322. Steam turbines: The theory, design and structural details of the different types of modern steam turbines are studied, and complete designs are worked out. *Three hours, first term.*

323. Reinforced concrete construction: A study is made of the principles involved in reinforced concrete construction as applied to buildings in general, and particularly to buildings for power houses, shops, manufacturing buildings, and large bins for storing coal. *Three hours, second term.*

324. Power plant design and economics: The economics of power plant design, the relation of the different elements of a power plant to each other, and the conditions of maximum efficiency are studied. Plants are designed to give the highest efficiency under specified conditions, and actual plants are studied to discover, if possible, sources of additional economy in operation. *Three hours, third term.*

325. Thesis: Every applicant for a degree is required to prepare a thesis and hand it in not later than May 1st, preceding the commencement at which he expects to graduate. This thesis may consist of a design, a study of some engineering problem involving a series of tests, or a study involving the collection and analysis of data and material on some engineering subject, with a statement of definite conclusions derived therefrom.

326. Manual training for teachers: Courses in elementary wood work and iron work are offered. These courses will be adapted as far as possible to the individual needs of those taking the courses, and in addition to the shop work will include lectures and conferences on the organization of courses and the equipment of shops for manual training. *Hours to be arranged.*

SPECIAL STUDENTS.

Special students who have the necessary preparation may be admitted to any of the classes in this department For the benefit of students who, for any reason, are not able to remain in college to complete the full course, but who wish some training in drawing and shop practice, a special two-year course has been arranged. This course is particularly recommended to the young men who contemplate entering the mechanical trades, either preceding or following the apprenticeship period. In many cases this work has been accepted as equivalent to a part of the apprenticeship period and the time of the latter shortened thereby. The drawing and mathematics are invaluable tools in any of the trades, and work in the different shops enables the apprentice to become familiar with the principles of the trades allied to his own.

The following courses are offered to students in the special Two-Year Course in Applied Electricity, and to any other students who may desire to take them.

327. Steam engines and boilers: An elementary descriptive course in which attention is called to the different types of engines and boilers, methods of setting, valve gears and valve setting, piping systems and auxiliary apparatus for power plants. *Three hours, first term.*

328. Gas engines: A descriptive course in gas, gasoline, and oil engines; different cycles, methods of ignition, troubles and remedies. *Three hours, second term.*

329. Transmission of power: Shafting, pulleys, bearings, belting, gearing, aligning of shafting, calculation of pulley and gear sizes, power of belts, lubrication and lubricating systems. *Third term, three hours.*

For teachers who desire to secure preparation in the subjects pertaining to manual training, special shop courses are arranged. These will include such of the regular courses as are adapted to the requirements of the class, and suitable supplementary courses in wood and metal work. Lectures on the arrangement of courses and the equipment for instruction in manual training are offered.

MINING ENGINEERING AND GEOLOGY.

PROFESSOR BROWN.

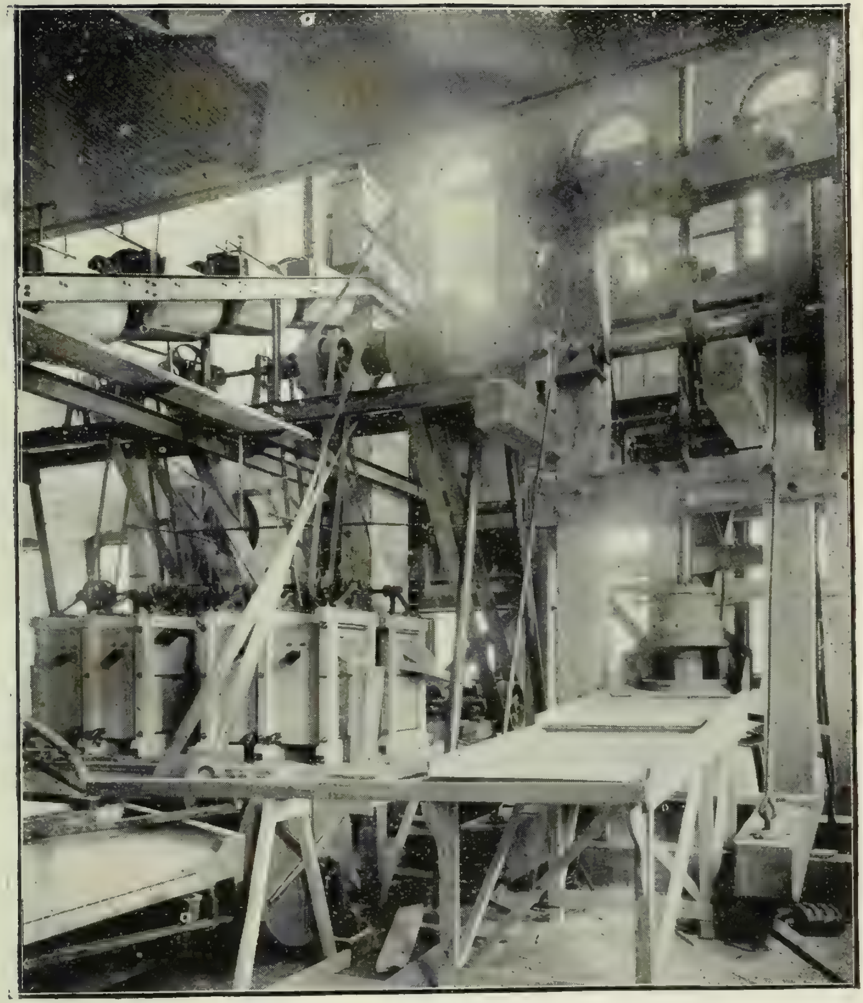
ASSISTANT FABER.

JUNIOR CLASS.

401. Crystallography: For students in the courses in civil engineering, mining engineering, and chemistry and metallurgy. A thorough study is made of the crystal systems with the aid of a full set of crystal models and natural crystals Special emphasis is laid upon the more practical features which will be of service in further mineralogical work. *Four hours, first mid-term.*

Text-book. Bayley's Elementary Crystallography.

402. Mineralogy: For juniors in the courses of civil engineering, mining engineering and chemistry and metallurgy. Half of the time is devoted to blow-piping and the determination of a large number of unknown minerals. The second half of the



Mining Engineering
Ore Dressing Laboratory

course is given to a study of the physical characteristics of the minerals. A good type collection of minerals is kept in the laboratory for comparison. An effort is made to have the student become familiar with economically important ores and non-metallic minerals and the common rock forming minerals so that he can identify them at sight by the application of a few simple tests. *Four hours, two and a half terms.*

Text-books: Butler's Handbook of Blow-pipe Analysis, and Butler's Handbook of Minerals.

403. General geology: For students in the courses of mining engineering, and chemistry and metallurgy, and for seniors in the courses of civil engineering, general course, and agriculture. The course covers dynamic geology, structural geology, geomorphology, and historical geology in the order named. The lectures and recitations are supplemented by laboratory instruction and geological excursions. *Two hours, entire session.*

Text-book: Chamberlin and Salisbury's College Geology.

404. Mine surveying: All general surveying as given by the civil engineering department previous to the second term of the junior year is required for this course. The work covers general surveying methods as applied to conditions prevailing at mining properties, both underground and at the surface. The student is required to work out practical problems that he will be likely to meet in actual practice. *Five hours, first half of second term.*

Text-books: Henck's Field Book, Coal and Metal Miner's Pocket Book, International Text-Books.

405. Coal mining: For those who have taken course 404 and its prerequisites. This course includes examination of coal properties, coal cutting machinery, methods of coal mining, track work, coal washing, coking and ventilation. *Five hours, second mid-term, and third term.*

Text-books: Coal and Metal Miner's Pocket Book, and International Text-Books.

406. Drafting: The course includes free hand lettering, mapping, and detailed drawings to scale of various structures relating to mining. *Five hours, entire session.*

407. Summer course: The time will be divided between a study of gold mining and milling at Alexander City; coal mining, washing, and coking at Birmingham, and iron ore mining at Birmingham. Surveys and reports will be required. *Four weeks immediately following commencement between the junior and senior years.*

SENIOR CLASS.

408. Economic geology, non-metallic minerals: For students in the courses in mining engineering, and chemistry and metallurgy. The course is presented by lectures and recitations and includes the study of modes of occurrence, distribution, origin and uses of coal, pretroleum, limestones, salines, gypsums, fertilizers, abrasives, minor non-metallic minerals, and mineral waters. *Two hours, first term.*

Text-book: Riess' Economic Geology of the United States. (Revised.)

409. Economic geology, metallic minerals: For students who have taken course 408. The work includes a study of the ores of iron, copper, lead, zinc, gold, silver, silver-lead, aluminum, manganese, mercury, and the minor metals. *Two hours, third term.*

Text-book: Riess' Economic Geology of the United States. (Revised.)

410. Mining: Modes of occurrence and origin of the various ores and economically valuable mineral deposits. Prospecting and examination of mineral properties, including boring by different methods. Methods of opening up mineral deposits, breaking ground, supporting excavations, developing and working coal and metalliferous deposits, haulage, hoisting, drainage, ventilation, lighting and provisions for ascent and descent. The last term is devoted to the economics of mining. This subject covers mining methods, finance, ore reserves, valuation of mining property, and other subjects relating to the practical operation of mines. *Three hours, entire session.*

411. Drafting: Drawings of mining and metallurgical machines are made from actual measurements taken. Also original work in connection with thesis. *Four hours, entire session.*

412.. Laboratory course: For students in mining engineering and chemistry and metallurgy. The work includes crushing, sampling, concentration, stampmilling, amalgamation, and cyaniding. *Three hours, entire session.*

Text-books: Coal and Metal Miner's Pocket Book, and International Text-Books.

413. Methods of teaching physical geography: Especially adapted to the secondary schools of the State. In the course in general geology will be found much that is especially applicable to physical geography. It takes up a study of subterranean and surface agencies both as to their destructive and constructive pro-

cesses. The results of these processes are then taken up in a study of the topography of the surface of the earth and under the following heads: The geographic cycle; land sculpture; topography as determined by faults and joints; adjustment of rivers; sea-coasts; mountain ranges. Students desiring extra work in this subject may arrange for a three-hour course. *Two hours a week, first and second terms.*

GRADUATE STUDENTS.

414. Graduate course: This course is offered to those who desire to pursue the subjects related to mining beyond the scope to which the two years' course limits them. The work will be arranged to meet the requirements of those desiring to take it.

ARCHITECTURE

PROFESSOR CURTIS.

ASSISTANT COLLINS.

The trustees of the Alabama Polytechnic Institute established in June, 1907, a department of architecture, to comply with an increasing demand for instruction in this subject, and to encourage students to take up a profession which hitherto could be pursued only after an expensive term of study in the North.

The course as planned leading to the degree of B. S. in Architecture covers a period of four years' study, of which the first two are devoted chiefly to intentional preparation in technical and cultural subjects leading up to the special instruction in architecture beginning in the junior year. The curriculum planned for the junior and senior years recognizes that architecture must be treated as an art as well as a science, and as drawing and design are the most essential elements in an architect's professional work, the greatest possible amount of time is devoted to them. As arranged the afternoons of the week are devoted entirely to drawing and the mornings to lectures on the technical studies. The work of the architect on account of its many aspects requires not only a thorough knowledge of design and building processes, but a wide sympathy with all intellectual culture. and the student is encouraged throughout his course to improve his mind by reading literature, history, and science. The importance of descriptive geometry and its applications is emphasized by a very thorough course in the sophomore year.

and this is continued during the fall term of the junior year in its special applications to architectural design and rendering.

Architectural Association Medal.—Given annually by the Society of Architects in Alabama to the student of the senior class in architecture most proficient in design.

The following courses are offered:

SOPHOMORE CLASS.

501. Elements of architecture and drawing: For sophomores who expect to elect the course in architecture. Thorough training is given in the fundamental principles of the architectural system of drawing. This includes free hand and mechanical in the various mediums, and a careful study of lettering. The orders rendered in the form of simple compositions and frontispieces furnish the basis of the year's work. An effort is made to cultivate the student's sense of proportion by insisting on an accurate knowledge of all the details of the classic orders as classified in Ware's American Vignola. *Three hours, entire session.*

JUNIOR CLASS.

502. Theory of architecture: Lectures and criticisms over the drawing board. General theory of artistic composition in the various styles applied to architecture and ornament. The course includes an extended study of the elements of design such as vaults, arches, arcades, columns, wall treatment, stairways, etc.; principles of rendering in color, pen and ink, and pencil, planning and composition of facades and a critical survey of the monuments of architecture in all periods. *One hour, entire session.*

503. History and ornament: The recitation periods are occupied by lectures on the historic styles and monuments of architecture and their applications to modern design, supplemented by the exhibition of lantern slides, and reference to photographs and books. The student is required to consult selected articles in the library and to prepare independently several essays during each term on specified subjects, illustrated by sketches and tracings. These are subsequently discussed and criticised. Such personal investigations are continued into the senior year, and the student gradually becomes familiar with standard books and acquires a working knowledge of historic forms

The course includes lectures on prehistoric architecture, general topography, history and religion of Egypt, pyramids, tombs, and temples, architecture and ornament of the Assyrians, Chaldeans, Persians, Phœnicians, and Jews; prehistoric Greek architecture, mythology, and radical characteristics; origin of the orders, vases, sculpture, polychromy, optical refinements; the Acropolis at Athens, and the Parthenon; early history of Italy and the Etruscans; the Romans,—types of buildings and construction and comparison of Greek and Roman art; early Christian and Byzantine art; Saracenic architecture and ornament; the Romanesque and Gothic styles; the Renaissance, Germany, and Spain; modern architecture on the continent and in the new world, and the various revivals; colonial architecture in the United States. *Two hours, entire session.*

503 (a). Ornament: Lectures on the various styles of ornament illustrated by means of photographs, prints and blackboard sketches in colored chalk are given concurrently with the course in the history of architecture. Numerous tracings and color sketches are required. *One hour, entire session.*

504. Drawing and design: The study of design is pursued by means of assigned problems and individual and class criticism. The first term is devoted mainly to a study of the orders on a large and small scale by means of carefully composed frontispieces, and during the spring, problems are assigned which will enable the student to employ the orders in a monumental and scholarly manner. A consistent and faithful adherence to historic precedent is insisted upon. *Eight hours, entire session.*

504(a). Freehand drawing: Pencil drawing from the cast, pen and ink tracings from photographs and sketches in black and white. Students from other departments of the college are admitted to this course by special arrangement. *Two hours, entire session.*

505. Architectural graphics: This course embraces the theory of projections, intersections, and shades and shadows; perspective by the office method and isometric constructions to simplify complex perspective details. It furnishes the basis for architectural drawing, and an equivalent of the course in descriptive geometry given in the sophomore year (Engineering 602) is an essential prerequisite. *Three hours, entire session.*

505 (a). Stereotomy: Description of building stones, tools, finishing and specifications. Methods of cutting stones, etc. Problems in stone jointing, and pattern making of developable surfaces. Lectures and drawing. Required of students in architectural engineering.. *Two hours, fall term.*

Summer work: *Twenty-five sketches or four weeks in an architect's office.*

SENIOR CLASS.

506. Drawing and design: The course is conducted by means of sketch problems occupying eight hours, testing the student's originality and use of the classified knowledge at his command; by written programs for typical buildings and group plans in the presentation of which a month or more would be allowed; by a thesis design occupying two months of careful work, with a written memoir accompanying the same. A lecture is given once a week on composition and the theory of architecture. *Twelve hours, entire session.*

506*a*. Freehand drawing. Charcoal drawing from the cast; water color. Students in other departments are admitted to this course by special arrangement. Pre-requisite 504 (a), freehand drawing. *Two hours, entire session.*

507. Architectural engineering: The courses in architectural engineering and specifications of building materials take up a major part of last year's work. In addition to the lecture and text-book recitations, practical examples are demonstrated and problems worked out over the drawing board. Working drawings and details of completed buildings are carefully studied, and scale drawings made by the student on tracing cloth and blueprinted. The student is instructed in the use of the various steel manufacturers' hand books and other pocket books.

Every other week a day is given to the solution of problems in constructive design, graphical analysis, etc., to illustrate the principles considered. Specifications are discussed and the different materials of construction, their manufacture and uses by the trades, are described.

The following synopsis indicates the subjects considered in detail: In construction, foundations, masonry walls and footings, stability and supporting forces, etc. Dimension and properties of structural shapes, tension, shearing, riveted joints, strength of posts, struts, and columns in wood, cast iron, and steel, strength of beams, stiffness and deflection, built up sections, fireproofing of buildings, reinforced concrete, roof trusses in wood and steel, graphical analysis of same and details of joints, estimating. *Three hours, entire session.*

507-a. Structural drawing and design: This course is intended for students who desire to specialize in the engineering or constructive side of architecture rather than in the art of planning and composition of facades. The two classes are required to work in the same draughting room, in order to secure the mutual advantages of observation and criticism of each other's work. Various details of construction are carefully worked out, drawn traced and blue-printed.

508. Specifications and building materials: This course includes architectural practice comprising the preparation of working drawings, specifications and superintendence. Legal relations of architect, owner, and contractor, contracts, settlement of disputes, responsibility and supervision of architect, payments, etc. Specific clauses and specification of labor, materials, workmanship, and construction. Mason's work, foundations, shoring and underpinning, limes, cements and mortars, building stones, brickwork, terra cotta, materials of fireproofing, lathing and plastering. Carpenter's work, building and finishing woods, framing, windows and doors, outside finish, standing finish, floors, stairs, heavy framing and slow burning construction, plumbing, heating and ventilating, builders' hardware and patented devices.

The course in specifications and building materials alternates with French. Juniors and seniors take these courses together every alternate year.

509. Construction and design: Students who have completed the foregoing prescribed studies leading to the degree in architecture, may pursue the study of design and construction through another year. A series of lectures is given, occupying a period of one hour a week throughout the year, the object of which is to improve the student's critical judgement and give him a more complete survey of the field of architectural composition. Certain reference readings are specified and he is required to report the results of his research. At least ten hours a week of freehand and architectural drawing are further required.

Text-book: J. Guadet—"Elements et Theorie de l'Architecture."

510. Six non-technical lectures on the history and appreciation of architecture, illustrated with lantern slides, are given at stated intervals throughout the year. This course is not restricted to students in architecture, but auditors are required to register their names at the beginning of the year. Not counted toward a degree.

SPECIAL STUDENTS.

Applications for admission as special students in architecture must show by certificate from a recognized college or by examination in Mathematics, English, and history that their preparation is equal to that given in those subjects during the freshman and sophomore years in this institution. They will also be required to take descriptive geometry in addition to their course in architecture. Draughtsmen of two years' experience in an architect's office will also be admitted as special students, provided their general education is satisfactory.

TEXT-BOOKS.

Sophomore Class.—Ware's American Vignola. Parts 1 and 2.

Junior Class.—History of Architectural Development—Simpson. Part I. History of Architecture—Hamlin. A Discussion of Composition—Van Pelt. Graphics—Curtis.

Senior Class.—Building Construction and Superintendence. Kidder, Parts 1 and 2. Architects and Builder's Handbook—Kidder.

MECHANICAL DRAWING AND MACHINE DESIGN

PROFESSOR FULLAN.
INSTRUCTOR GUAM.
INSTRUCTOR THOMAS.
ASSISTANT ASKEW.

The following courses are offered in this department:

FRESHMAN CLASS.

601. Mechanical drawing: This course is not of a technical nature, is intended to be of general educational value to the student, and is required of students in all courses. The object of the course is to provide the student with the applications of geometry to drawing, and to train the hand and eye, with the mind. The work is principally that of linear drawing, including the most useful of the geometric constructions, arranged in progressive order. Free-hand lettering is given early in the course by means of lectures, and practice work in it is continued throughout the year. The one plane projections—axonometric and oblique which enable the student to represent an object on a single plane, are illustrated by means of suitable models, from which the students make their drawings. In this course accuracy, neatness and the use and care of the instruments are given special attention. *Three hours, entire session.*

SOPHOMORE CLASS.

602. Descriptive geometry: Required of all students preparing for engineering and architectural courses. The work is given by

lectures, written recitations, and drafting room instruction. In this course, theory and practice are combined with the purpose of training the student in the graphical expression of ideas. The instruction includes problems relating to the points, straight line, and plane; tangents and normals; to cylindrical, conical, and warped surfaces; to sections, intersections, and developments; to shades, shadows, and perspective, and is intended to develop in the mind of the student a clear concept of magnitudes in space. The lectures and written recitations are to impart principles and to permit the instructor to meet the entire class, and, with diagrams and models, supplement the work of the text. The drawing, two hours per week, consists of plates of problems, which are selected from the text-book and other sources. *Four hours, entire session.*

603. Mechanical drawing: Like course 601, of the freshman class, this course is non-technical and is of a general educational nature. The work is given concurrently with that of course 602, in descriptive geometry, and the applications of the methods of analysis given in descriptive geometry are stressed in each case where they may be applied. The subjects of the drawing plates, which are principally geometric, are required to be completely represented by the student, to enable one to read clearly what is intended to be shown. The work includes isometric projection, orthographic projection, sections, intersections, and developments, machine drawing, and free-hand lettering. As a check on the work in sections, intersections, and developments, and to more fully illustrate the subject, models from drawing paper of the surfaces are made by the student from the developments. This course is a prerequisite to work in the junior class in civil, electrical, mechanical, and mining engineering. *Three hours, entire session.*

JUNIOR CLASS.

604. Kinematics of machinery: Required in the courses of mechanical engineering and electrical engineering. Under this head machines are analyzed and their elementary combinations of mechanisms are studied. The communication of motion by gear wheels, belts, cams, screws, and link work, and the different ways of obtaining definite velocity ratios, and definite changes of velocity in machine parts, parallel motions, and quick return mo-

tions, as well as the designing of trains of mechanisms for various purposes, together with the theoretical forms of teeth for gear wheels to transmit motion of these trains, are investigated under this subject. *Three hours, entire session.*

605. Graphic statics of mechanism: Required in course of mechanical engineering. The lectures provide a brief course in graphic statics, graphical statics of mechanism, and in the design of structures, including roof trusses for factory buildings, crane frames and girders, and watertank towers. The stresses in machines and structures are investigated by graphical methods, which are carefully checked in the beginning, by analytical proofs. This course includes the solution by graphical methods of such problems, before which analytical methods are comparatively impotent, as those which involve the friction losses in machines, and of the determination of the efficiency of mechanisms. The graphical method is also applied to dynamics by problems in the balancing of engine crankshafts working under specified conditions. The use of manufacturers' handbooks and drafting room practice are given special attention. *One hour, entire session.*

606. Machine design: Required in the courses of electrical engineering and mechanical engineering. Instruction is given in the design of fastenings and machine parts, and in the general methods of arranging views. This course includes the design of cams, gear tooth outlines, quick return motions, and link work combinations, which supplements course 604, in kinematics. Scale drawings of simple machines are made from dimensioned sketches, which each student makes for himself from an actual machine or model. Tracings and blue-prints are made from these drawings. All the instruction is intended to familiarize the students with modern drafting room methods. *Four hours, entire session.*

607. Machine design—lectures: Required in the courses of mechanical engineering and electrical engineering. These lectures are intended to cover the general instructions to the students, such as the selection of materials for different machine parts, the rules for proportion of parts to secure strength, symmetry, and cheapness of manufacture, and the best methods of making, recording and preserving the calculations incidental to the design of a complete machine. Much valuable engineering data of current nature in the form of notes are given as a supplement to the text-book. Illustrated lantern lectures on sub-

jects related to the course are given at intervals during the year. *One hour, entire session.*

608. Machine design—drawing: Required in the course in mechanical engineering. This is a continuation of the junior course in machine design. Original problems involving the design of complete machines to work under specified conditions are assigned and the student develops the idea in the form of sketches. These are submitted to the instructor for criticism and are afterwards embodied in complete detail and assembly drawings. The calculations of each design are written up neatly and filed with the drawings. Special attention is given to the strength of the parts, to the harmonious and symmetrical appearance of the complete machine, and to the details as regards practical manufacture. *Six hours, entire session.*

609. Machine design—drawing: Required in the course in electrical engineering. The work given and the methods pursued are similar to those described in course 608, just preceding, but the amount of work required is reduced in proportion to the amount of time given to the subject. *Three hours, entire session.*

GRADUATE STUDENTS.

610. The work offered during the post-graduate year is an extension of that of the senior year. More of the theory of the subject is taught, more intricate machines are involved, and problems are given involving the design of a series of machines for manufacturing some specifice article. The problems arising in the design of a line of machines of different sizes are also taken up, including the applications of graphical methods and the use of factors of enlargement and reduction. Special attention is given to the effect of current practice on the proportion of machine parts. Suitable text and reference books are used.

611. Methods of teaching drawing and descriptive geometry: A course in the methods of teaching drawing and descriptive geometry is given to those who wish to prepare for teaching these branches. This course includes advanced work in shape of problems, supplemented by frequent conferences with the instructor, a full bibliography of works on the subjects, and an extended course in reading.

Those who desire to avail themselves of an opportunity to practice the teaching of the subjects, may be permitted to attend the meetings of the large classes in elementary work for the purpose of observing methods of teaching.

Those who show sufficient preparation may be allowed to assist in tutoring delinquent students and those who enter conditioned.

Special attention is given to the subject of drawing as taught in high school work.

TEXT-BOOKS.

Thomson's Educational and Industrial Drawing Series, Cross' Mechanical Drawing, Jamieson's Isometric Drawing, Phillips and Millar's Essentials of Descriptive Geometry, French's Engineering Drawing, Schwamb and Merrill's Elements of Mechanism, Spooner's Machine Design, Smith and Marx's Machine Design, Spangler's Graphics.

COLLEGE OF AGRICULTURAL SCIENCES

DEPARTMENTS

The College of Agricultural Sciences comprises the following departments:

Chemistry.
Agriculture.
Botany.
Pharmacy.
Horticulture and Forestry.
Entomology.
Animal Industry.

The facilities for instruction together with laboratory equipment in each department are described under the head of "Laboratories and Facilities for Instruction" pages 9 to 20 of the catalogue.

In addition, students in the different departments of the College of Agricultural Sciences receive instruction in other departments as follows:

English.
History and Latin.
Modern Languages.
Mathematics.
Mechanic Arts.
Surveying.
Physics.
Geology and Mining Engineering.
Mechanical Drawing and Machine Design.
Military Science and Tactics.
Veterinary Science.

CHEMISTRY

PROFESSOR ROSS.

PROFESSOR HARE.

ASSISTANT PROFESSOR BRAGG.

ASSISTANT PROFESSOR WILLIAMSON.

ASSISTANT POWELL.

ASSISTANT ADLER.

ASSISTANT MARSH.

Instruction in this department embraces the following courses of lectures; systematic laboratory work is given in connection with each course for the practice of chemical analysis and chemical research:

FRESHMAN CLASS.

101. Course in general chemistry: This consists of a series of lectures including a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties, and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form. *Four hours, entire session.*

[This course is required in the sophomore class, session 1912-13.]

REFERENCE BOOKS.

Remsen's College Chemistry, Newth, Holleman, Roscoe and Schorlemmer, Chemical Journals.

JUNIOR CLASS.

102. Industrial chemistry: Lectures, including discussion in detail of the process and chemical principles involved in the most important applications of chemistry in the arts and manufactures to the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

Interior Chemical Laboratory

These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams. *Four hours, entire session.*

103. (a) Course in organic chemistry: Instruction in this subject embraces lectures and recitations upon the leading facts and principles of the chemistry of the carbon compounds, and includes a study of the methods of preparation of the more important compounds, their properties, and their structural and stereo-chemical relations. *Two hours, entire session.*

(b) A special short course offered to students in the agricultural courses. *Two hours, first term.*

TEXT AND REFERENCE BOOKS.

Remsen's Organic Chemistry, Richter's Organic Chemistry, Gatterman's Practical Methods of Organic Chemistry.

SENIOR CLASS.

104. Metallurgy: This course consists of lectures and recitations upon the more important metals, such as iron and steel, copper, lead, tin, silver, gold, mercury, zinc, etc. It includes a discussion of the physical and chemical properties of the metals and their alloys, the ores and their treatment, and the processes by which the metals are obtained from the ores, with chemical reactions involved. *Two hours, entire session.*

105. Agricultural chemistry: This course consists of lectures on chemistry in its application to agriculture, and includes a thorough discussion of the origin, composition, and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist. *Three hours, second and third terms.*

REFERENCE BOOKS.

Snyder's Soils and Fertilizers, Snyder's Chemistry of Plant and Animal Life, Johnson's How Crops Grow, and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in Relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

106. Engineering chemistry: A course of lectures given during the senior year, especial attention being devoted to the study of the construction and equipment of the chemical plants devoted to the manufacture of the more important chemical products. The study of textile chemistry will also be included in this series of lectures. *One hour, entire session.*

Excursions to various chemical and metallurgical plants during the course of the year will aid in familiarizing the student with the practical details of the operation of the leading industries.

REFERENCE BOOKS.

Thorp's Industrial Chemistry, Wagner's Chemical Technology; Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Sadtler's Industrial Organic Chemistry, Blount and Bloxam's Chemistry for Engineers and Manufacturers.

107. Course in theoretical chemistry: The more modern phases of chemical theory are given special attention. *Two hours, entire session.*

108. Course in physical chemistry: Lectures and recitations. *Two hours, entire session.*

109. Methods of teaching chemistry in the secondary schools: In this course, students who have had the necessary preliminary work in chemistry will be afforded the opportunity of taking laboratory practice in experimental chemistry for lecture purposes and for the purpose of the practical study of methods of handling classes in experimental laboratory work. Advanced students can also take the course in the history of chemistry which is provided in the senior year of the course in chemistry and metallurgy. *Hours to be arranged.*

LABORATORIES.

110. Course of systematic laboratory work: Courses of practical work in the laboratory are carried on in connection with all courses of lectures.

The laboratories, which are open from 9 A. M. to 5 P. M. during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation in qualitative and quantitative analysis, and in the methods of prosecuting chemical research. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles and the common reagents and apparatus used in the qualitative and quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from his contingent fee.

SOPHOMORE CLASS.

(a) All students in the courses in agriculture, chemistry and metallurgy, and mining engineering are required to take practical laboratory work. Students in the course in pharmacy, upon application may be allowed to take this work. *Six hours, entire session.*

JUNIOR CLASS.

(b) The work of this course embraces the practical operations of chemical synthesis and anlysis, and includes the preparation of non-metallic elements and their most important compounds, in addition to a systematic study of the metals and their compounds, their separation and identification.

SENIOR CLASS.

(c) A course in quantitative analysis, including analysis of fertilizers, soils, coals, ores, iron and steel, sugars and sugar products, feed stuffs, mineral waters, fluxes, slags, cinders, furnace gases, etc. The nature of the work is varied somewhat to suit the individual object of the student.

(d) The laboratory course provided for students in the course in mining engineering includes work in qualitative analysis during the first term. During the second and third terms, students take work in quantitative analysis including assaying. In this latter portion of the course, especial attention is given to metallurgical analysis and the fire assay of ores of gold, silver, and other important metals. *Eight hours, entire session.*

(e) In the course in pharmacy instruction in toxicology and toxical analysis is given during the last term.

111. In addition to the laboratory work above described it is designed to give a short course of laboratory work in industrial chemistry, in which the student will apply upon a small scale the principles involved in the processes of some of the more important chemical industries.

Advanced students are afforded ample facilities for work in organic preparations and organic analysis.

TEXT-BOOKS.

In qualitative analysis—Jones, Sellers, Fresenius, Plattner.

In quantitative analysis—Fresenius, Cairns, Sutton, Rose, Blair's Analysis of Iron and Steel, Rickett's Notes on Assaying, Mitchell's Manual of Practical Assaying, Stillman's Engineering Chemistry, Lord's Metallurgical Analysis.

In agricultural chemical analysis—Official methods of the Association of Agricultural Chemists, Wiley's Principles and Practice of Agricultural Analysis.

AGRICULTURE

PROFESSOR DUGGAR.

ASSISTANT PROFESSOR FUNCHESS.

ASSISTANT STEWART.

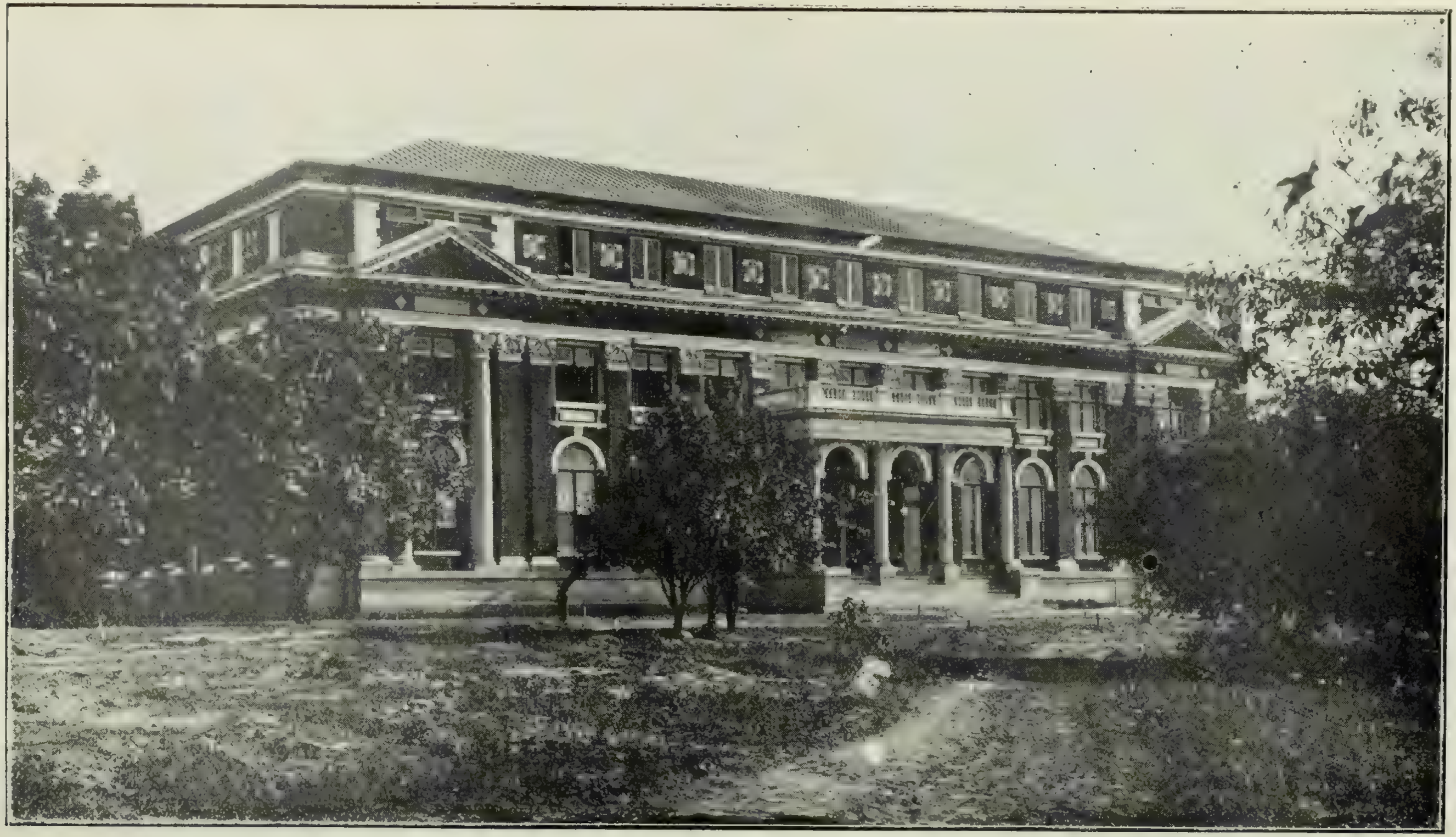
The regular agricultural course extends through four years and is intended to prepare those who complete it to become successful farmers, farm superintendents, and agricultural scientists in the various divisions of agricultural work in the U. S. Department of Agriculture and the numerous agricultural colleges and experiment stations. The studies in the regular agricultural course are so arranged that a student may obtain a thorough education while acquiring the technical training necessary to the most successful management of farming operations and of agricultural investigation or teaching. No foreign language is required for graduation in this course, but those who expect to engage in the scientific work of the U. S. Department of Agriculture or of the Agricultural colleges and experiment stations, have the opportunity to study Latin, French, and German, or any one or two of these.

For the benefit of those who are unable to spend four years at college and who desire to prepare for the management of a farm, a short or two-year course in agriculture is provided. In this the student devotes his entire time to those studies having a direct bearing on his future occupation.

The following courses of instruction are offered:

FRESHMAN CLASS.

201. Introduction to agriculture: This is a short course of lectures, dealing with some of the simplest phases of agriculture. *Two hours, half third term.*



Comer Agricultural Hall

SOPHOMORE CLASS.

202. Principles of agriculture: Lectures, recitations, and laboratory practice dealing with the soil and the conditions necessary to the growth of crop plants. Methods of preparing and cultivating the soil are considered. *Four hours, second term.*

203. The small grains: Lectures, recitations, and field practice on wheat, oats, rye, and barley. These plants are treated both as grain crops and as forage plants. *Two hours lectures, two hours laboratory, third term.*

JUNIOR CLASS.

204. Corn: Lectures, recitations, and field practice on the cultivation, judging and improvement of corn. The student assists in harvesting certain experiments, becomes acquainted with a number of the best varieties, learns to select the best ears and the best plants, and notes the results of experiments in improving or breeding corn. *Two hours lectures, two hours laboratory, first term.*

205. Leguminous forage plants and soil improvement: Lectures, recitations, and field practice on this most important group of forage plants, including cowpeas, soy-beans, alfalfa, the clovers, vetches, etc. These plants are treated both with reference to their use as forage plants and as means of improving the soil. *Two hours lectures, two hours laboratory, third term.*

SENIOR CLASS.

206. Cotton: Lectures, recitations, and field practice in identifying and comparing a large number of varieties growing on the experiment station farm; judging individual cotton plants, and lectures on the cultivation, fertilization, and improvement of cotton. The collection of varieties growing on the experiment station farm usually numbers between fifty and one hundred varieties, and all of these are available for students' use. *Two hours lectures, two hours laboratory, first term.*

207. Cotton classing and machinery: This course of laboratory work consists during the first part of the term of practice in classing the commercial grades of cotton by comparing great numbers of samples procured from the offices of cotton buyers with a nearly complete set of type samples owned by this department. A part of this practice will be under the supervision of experienced cotton buyers. During the latter part of the term students are given practice in the handling and sharpening of

gins and special work with other machinery used in connection with the cotton crop. *Two hours lectures, two hours laboratory, second term.*

208. Farm management: A course of lectures and practice dealing largely with rotation of crops, cost of producing different crops, systems of farming, selection of a farm, and plans for the best use of the farm or soil in which each student is most interested. This course is intended to give the student an opportunity to bring to bear on practical problems the information acquired from preceding courses of instruction in agriculture and related subjects. *Two hours lectures, two hours laboratory, third term.*

209. Investigation as a basis for a thesis: After a month spent in special reading under the direction of the professor of agriculture with a view to the selection of a subject for a thesis, the student will perform some agricultural experiment in crop production, soil treatment, or in testing farm machinery. Suitable facilities for such thesis work are provided in the fields and agricultural laboratories. In addition to conducting an original experiment the student will review the literature of agriculture to ascertain the results of similar or related experiments. It is expected that the results of some of these experiments will be worthy of publication. *Entire session.*

211. Soils and soils laboratory: Recitations intended to acquaint the student with the physical properties of soils, with the principal soils of Alabama, and especially those of the region from which each student comes. Instruction in this course will be given with a view to fitting a student to engage in the soil survey work of the U. S. Department of Agriculture, as well as to prepare him for the rational management of the soil of the farm. *Five hours, entire session.*

212. Special crops: A course of lectures dealing with sugar cane, tobacco, rice, broom-corn, and other southern crops not treated in other courses. *Two hours, second term.*

213. Methods of teaching agriculture: This is a course of lectures and laboratory and field exercises intended to meet the needs of those who expect to teach agriculture or nature study in the common schools and agriculture in the high schools. Special attention is given to the selection of material for illustrating the principles of agriculture, and practice will be given in conducting a number of simple demonstrations. Frequent excursions are made to the fields. *Two hours, third term.*

Post graduate courses in crop production, agricultural experimentation and teaching, and farm management are offered. The exact nature of the subject will depend upon the special requirements of the student.

Students taking a four-year course in agriculture receive instruction in the various branches of animal industry and horticulture, as well as in the natural sciences bearing on agriculture.

BOTANY

PPOFESSOR LLOYD.

INSTRUCTOR RIDGWAY.

ASSISTANT ARNOLD.

SOPHOMORE CLASS.

301. Elementary Botany: The purpose of this course, planned as it is for sophomores preparing to enter one of several fields of study, is to orientate the student as to the scope of the science, its practical values, and its relation to human knowledge. The course consists of a synthetic treatment of the elements of morphology and physiology, followed by a brief consideration of examples of the more important plant groups. It is a prerequisite for all other courses in botany. *Lectures and recitations, three hours; laboratory, four hours; third term.*

JUNIOR CLASS.

302. General Agricultural Botany: This course is a development in greater detail, of Course 301. In the laboratory attention is directed chiefly to anatomy and morphology, with stress laid upon matters especially relevant to the interests of students of agriculture. In the lecture room, the time is devoted chiefly to elementary plant physiology. The laboratory work is so arranged that it is constantly correlated with that of the lecture room. The course is particularly adapted to those who are fitting themselves for agriculture and for teaching. *Lectures, two hours; laboratory work, four hours; the entire session.*

Text-book: Bergen and Davis' Principles of Botany.

303. Pharmaceutical Botany: General organography, chiefly though not entirely confined to the higher plants, followed by a study of histology and microtechnic preparatory to a minute study of vegetable drugs in whole and powdered form. Required of students in pharmacy. *Lectures, one hour; laboratory work, four hours; the entire session.*

Text-book: Kraemer's Text-book of Botany and Pharmacognosy.

304. Economic botany: General taxonomy of the plant kingdom, and special taxonomy of the spermatophytes, giving attention especially to the useful and noxious qualities of plants, poisonous, medicinal, and industrial. Especially for students in veterinary medicine; open to students in agriculture. *Two hours, first and second terms.*

Text-book: Bergen's Elementary Botany.

SENIOR CLASS.

Advanced Agricultural Botany. This course is a continuation of course 302, and is designed for students of agriculture, though is open to others prepared to take it. It is divided for convenience into three parts as follows:

305. Plant pathology. The physiological diseases, as well as those caused by vegetable organisms, are considered; plant hygiene; methods of disease control, and of the selection of resistant strains. *Lectures, two hours, laboratory, four hours, first term.*

Text-book: Duggar's Fungous Diseases of Plants.

306. Plant physiology: *Lectures two hours; laboratory, four hours second term.*

Barnes, in Coulter, Barnes and Cowles' Text-book of Botany.

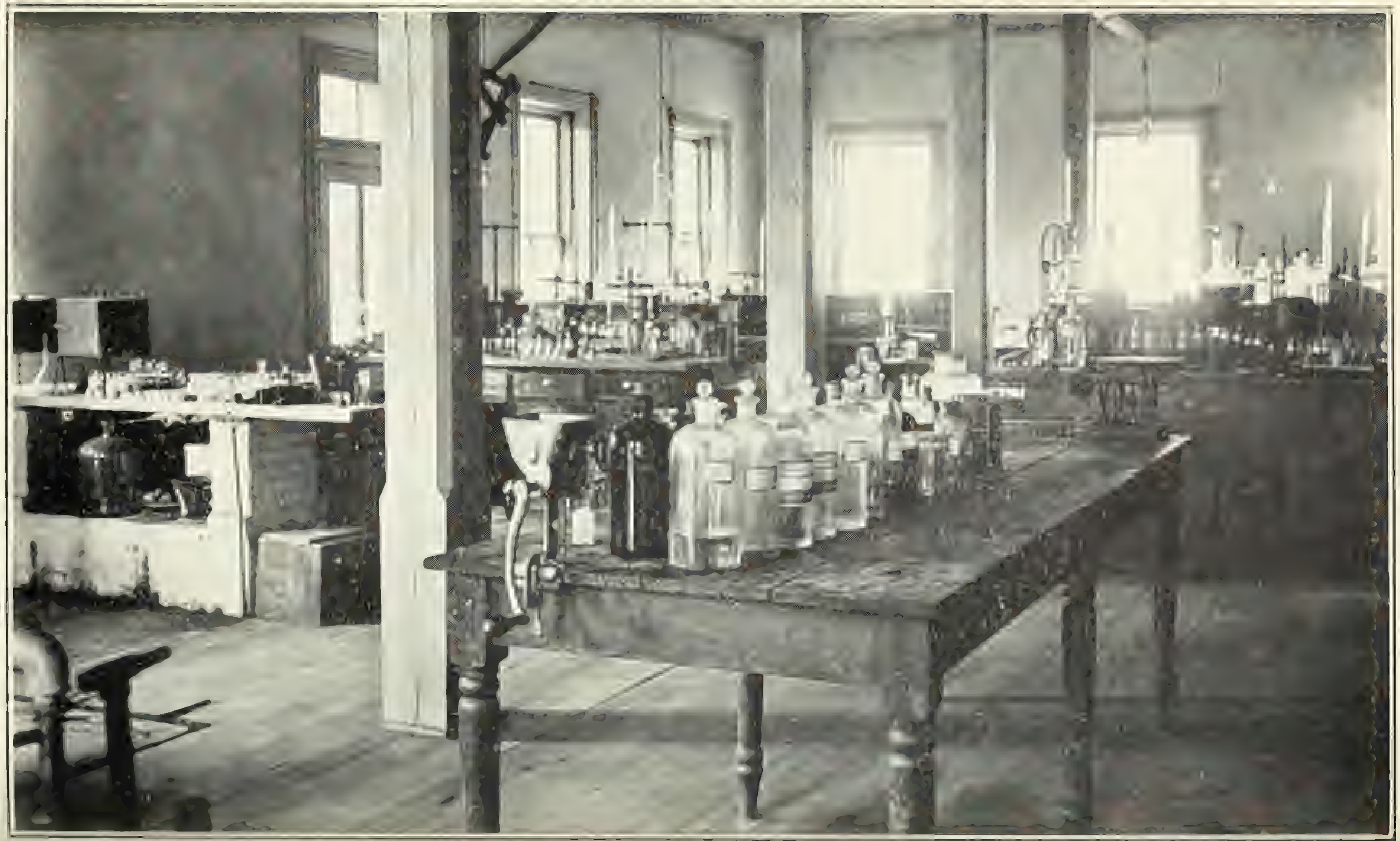
307. Phytogenesis: Historical account of the development of our knowledge of the method of evolution, and its modern application to the amelioration of economic races, chiefly of plants. The physiology of reproduction, and the elements of cytology. *Lectures, two hours; laboratory, four hours, third term.*

Text-book: Kellog's Darwinism of Today.

308. Comparative morphology. A comparative study of types of the plant kingdom, and the principles of general classification. Designed especially for those preparing to teach, *Four hours, entire session.*

Text-book: Coulter, in Coulter, Barnes and Cowles' Text-book of Botany.

309. Methods of teaching biology: The history of teaching biology, especially in America, and a study of the prevalent methods of presenting botany (especially) and zoology in the second ary school. The course in botany in the agricultural school. Open to seniors and to others if qualified. Text-books, Lloyd and Bigelow's The Teaching of Biology in the Secondary



Interior Pharmaceutical Laboratory

Schools; Ganong's The Teaching Botanist. *One hour, the entire session.*

310. Graduate courses will be arranged to suit the needs of students who are prepared for them.

Seminar: Students will meet the Professor occasionally in the seminar room for informal discussion and the review of literature.

Thesis: Students who expect to undertake thesis work in this department during their senior year should consult in advance as to the subject so that material may be provided for their work. Students in the general course who wish to take their elective laboratory work in botany should if possible consult about it before the end of their sophomore year.

PHARMACEUTICAL CHEMISTRY, PHARMACY, PHARMACOGNOSY AND PRESCRIPTION WORK

PROFESSOR MILLER.

ASSISTANT ESKEW

ASSISTANT MOSELEY

ASSISTANT LAMAR.

JUNIOR CLASS.

401. (a) Pharmacy: The different systems of weights and measures. Specific gravity. Pharmaceutical problems. The fundamental operations in pharmacy. Apparatus used in pharmaceutical processes. Discussions of all classes of pharmaceutical preparations. *Class work, three hours, entire session.*

(b) Laboratory: Preparation of official and non-official galenicals. *Six hours, entire session.*

402. Pharmacognosy: All official vegetable drugs studied with aid of simple and compound microscope. *Class work with laboratory work, four hours, entire session.*

SENIOR CLASS.

403. (a) Pharmacy: Official and non-official pharmaceutical chemicals, inorganic and organic, including more important newer remedies. *Class work, five hours, entire session.*

(b) Laboratory: Preparation of official and non-official pharmaceuticals, inorganic and organic chemicals. Pharmaceutical testing by pharmacopœial methods. Drug assaying. Practical exercises in the identification of pharmaceutical preparations and chemicals. *Fifteen hours, entire session.*

404. Art of dispensing: The prescription. The study of several hundred original prescriptions from drug-store files. Incompatibilities. Doses. *Four hours, entire session.*

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than 200 drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, origin, habitat, constituents, medicinal action and dose.

405. The work of the third year in the special course in pharmacy may be elected from the following courses:

(a) An advanced course in the manufacture of galenicals and organic and inorganic chemicals used in medicine.

(b) A course in the testing of drugs and medicinal chemicals for impurities by pharmacopœial methods.

(c) A course in pharmaceutical assaying, including the assay of alkaloidal drugs, glucosidal drugs, resinous drugs, the valuation of fixed and volatile oils, pepsin, diatase, etc.

(d) A course in water analysis.

(e) A course in milk and butter analysis.

(f) A course in physiological chemistry.

(g) A course in organic preparations.

(h) An advanced course in toxicological analysis.

(i) The presentation of a satisfactory thesis.

Any one who completes the work of the three-year special course in such a manner as to prove himself a competent analyst will be granted the degree of Pharmaceutical Chemist.

The pharmacy department of this institution is a member in good standing of the American Conference of Pharmaceutical Faculties.

TEXT AND REFERENCE BOOKS.

Arny's Principles of Pharmacy, Stevens' Pharmacy and Dispensing, Kræmer's Botany and Pharmacognosy, Caspari's Treatise on Pharmacy, Sayre's Organic Materia Medica and Pharmacognosy, Culbreth's Materia Medica and Pharmacognosy, Scoville's The Art of Compounding, Beal's Prescription Practice,

Horticulture

Experiment Station

Dorland's Pocket Medical Dictionary, Ruddiman's Incompatiibilities in Prescriptions, Lyon's Pharmaceutical Assaying, United States Pharmacopœia, United States Dispensatory, National Dispensatory, National-Standard Dispensatory, King's American Dispensatory, Prescott's Organic Analysis, Allen's Commercial Organic Analysis, Pharmaceutical Journals, Reports of American Pharmaceutical Association.

HORTICULTURE

PROFESSOR WILLIAMS.

INSTRUCTOR PRICE.

Instruction in this department consists of lectures, recitations, and exercises in the greenhouse laboratory, orchards, and gardens of the experiment station. It is the aim to give a thorough course in the practical and scientific phases of the growing of our economic fruit, vegetable, and ornamental plants.

JUNIOR CLASS.

601. Principles of Plant Culture: This includes the details of germination, propagation, environment, transplanting, etc.; also methods of preparing and sowing seed beds. *Recitations, two hours, first term.*

Text-books: Principles of Plant Culture (Goff), The Nursery Book (Bailey).

601. (a) Plant Propagation: Studies including seed testing, propagation of different plants, pruning, etc. Students are required to submit illustrated notes. *Laboratory and field; four hours, first term.*

602. Principles of Fruit Growing: A study of the more important fruits of the United States with especial reference to their cultivation and fertilization. Details of marketing Southern fruits are studied. *Recitations and lectures; two hours, second term.*

Text and reference books: Principles of Fruit Growing (Bailey), Popular Fruit Growing (Green), Lessons in Fruit Growing (Goff).

602. (a) Field exercises such as locating orchard sites, and planting, cultivating, pruning and spraying operations are conducted. Illustrated notes are required. *Four hours, second term.*

References: Pruning Book, Horticulturists' Rule Book (Bailey).

603. Vegetable Gardening: Studies of the principal truck and garden crops with notes as to the origin, classification and economic importance; methods of planting, fertilizing, harvesting, storing and marketing these crops. *Recitations and lectures; three hours, third term.*

Text and Reference Books: Vegetable Gardening (Bailey), Up-to-Date Truck Growing in South (Davis), Vegetable Gardening (Vilmorin), Southern Gardener's Manual (Newman).

603 (a). Practicums in the vegetable garden consisting of planting, cultivating and spraying. *Laboratory, two hours, third term.*

SENIOR CLASS.

604. Pomology: Varietal studies of fruits: their origin and classification. Exercises in scoring and describing fruits, pecans, etc., for their respective purposes such as the home market, commercial market and canning. Practicums in cannings. *Recitations and lectures, three hours; laboratory, two hours, first term.*

Text and Reference Books: Systematic Pomology (Waugh), Fruit Harvesting, Storing and Marketing (Waugh), The American Fruit Culturist (Thomas).

605. Evolution of Our Native Fruits. *Recitations, two hours, first term.*

Text: Evolution of our Native Fruits (Bailey).

606. Plant Breeding: The study of the improvement of fruits and vegetables. Discussions of the theories and laws relating to plant breeding. Practicums in breeding are given. *Recitations, three hours; laboratory, two hours, second term.*

Texts and Reference: Principles of Plant Breeding (Bailey), Plant Breeding (Davenport).

607. Greenhouse Construction and Management: Plans for heating and constructing greenhouses of modern design are studied with reference to the different crops. *Laboratory, two hours; second term.*

608. Forestry: A study of the forest conditions of Alabama, the care of woodlots and the uses of the different Southern woods. Methods of preservation are also studied. *Recitations and lectures, three hours; laboratory and field exercises, two hours, second term.*

Text and Reference Books: First Book of Forestry (Roth), Practical Arboriculture (Brown), Primer of Forestry (U. S. Department of Agriculture).

609. Landscape Gardening: An introduction to the general subject of landscape design. The trees, shrubs, vines, perennials and annuals are studied which are adapted for Southern gardening. Individual problems are presented for the embellishment of the home and school grounds and plans for public squares and parks are studied. *Lectures, three hours; laboratory, four hours; third term.*

Text: Landscape Gardening (Waugh). References: Modern Civic Design (Robinson), The Landscape Beautiful (Waugh),

610. Thesis: Each student in Group "B" must prepare a thesis and submit it not later than May 1st.

ENTOMOLOGY

PROFESSOR HINDS.

INSTRUCTOR TURNER.

In accordance with the catalogue requirements the work in Entomology is taken by all senior students electing an agricultural group of courses, and by the special two-year agricultural students during their second year. In addition to this senior work the subject is open to postgraduate students, who have completed the senior course satisfactorily, as an elective course leading to the degree of Master of Science. The senior work is given during the fall and spring terms only, while the postgraduate work continues during the college year. In general the instruction is given by lecture courses supplemented by collateral reading as assigned and with appropriate laboratory and field exercises.

The senior courses are designed to familiarize the students who anticipate engaging in agricultural work with the most important general facts of entomology as an educational science and with its importance as a subject having wide economic application. So far as possible in the brief time available, they are made familiar with some of the most common insect pests, and with general methods of insect control. Particular emphasis is given to the importance of insect species in their effects upon health of domestic animals and of man especially. A foundation is laid during this year for postgraduate study which may fit men to fill some of the many attractive openings in this field which are quite rapidly multiplying in the South.

Excellent accommodations for the department are now provided on the first floor of Comer Hall. The combined lecture and laboratory room provides accommodations for forty or more men. In connection with the range of greenhouses there is also a large workroom for experimental and demonstrational work with insecticides and an insectary, 16x40 feet, within which the study of insect problems may be conducted at any time under controllable conditions.

No text-book is required in this subject, but reference publications are at all times available to the student. The lectures may be supplemented by appropriate laboratory work, field exercises, the insect collection, photographs, etc., belonging to the department.

701. Structure and development of insects: The general relation of insects to other animals, showing their origin, distinguishing characteristics and the principal structures upon which they are classified, are here considered. A general study is made of the structure and physiology of insects relating to fundamental principles in their life, habits, and reproduction. The most important points in the collection, mounting and preservation of insect specimens are also studied.

702. Ecology of insects: Under this heading are considered some of the most important and interesting of entomological subjects, among which are the general relation of insects to the health and welfare of mankind through the transmission of preventable diseases and the production of articles having a large commercial value. Protective devices of insects and their control through exceedingly complicated but important natural factors are among the subjects considered.

703. Important insect pests: As full a study as the limited time permits is made of the pests of greatest economic importance in the household, the orchard, garden, and greenhouse, the enemies of field crops, stored products, etc.

704. Methods in insect control: The principles of insecticide preparation and application are explained and illustrated. This work is supplemented by an exhibit of the principal insecticide materials. Practice in the preparation of the most commonly used materials is given to emphasize proper and desirable methods. The best types of spraying apparatus are shown and tested, and the student is familiarized with many of the special points in practical work. The importance of the improved methods of agricultural practice is shown and the logical basis of their effectiveness is explained.

ANIMAL INDUSTRY

PROFESSOR GRAY.

INSTRUCTOR SUMMERS.

Instruction in this department is given in the class room, in the laboratories, and upon the animal industry farm with the stock. Class room work in dairy instruction is supplemented and strengthened and made practical by requiring each student to work in the dairy laboratory where butter is made, where the Babcock test is used, and where the lactic acid in cream is determined, etc. While lectures are given on how to judge animals, the instruction does not stop with lectures; the students are taken to the barn and feedlots where the animals are placed before them and each student is required to make a written report concerning the animal. The live stock provided for the students' use in studying breeds and judging animals consists of Angus, Jersey, Hereford, and Shorthorn cattle; Duroc-Jersey, Berkshire, and Poland China hogs; Southdown, Dorset, common, and grade sheep.

The department now has the complete herd books of practically all the leading breeds of live stock in America. By the use of these the student is enabled to inform himself in regard to all pedigrees and to study the different scales of points which the breeders have adopted to represent the highest types of the various breeds.

The student is given an opportunity to specialize in animal industry throughout the senior year.

FRESHMAN CLASS.

801. Breeds of live stock: The object is to study the original history of development, and characteristics of each one of the principal breeds of live stock, and to discuss the special adaptability of each breed to Southern conditions. The lecture work is supplemented, as far as possible, by representative animals of the breed under discussion. *Lectures, two hours, latter half third term.*

SOPHOMORE CLASS.

802. Dairying: The study of the secretion, character, and composition of milk. Proper methods of handling milk and cream for consumption; Pasteurizing, sterilizing. The students are given thorough work in using the Babcock test and the lactometer, and the different acid tests, together with the ordinary tests for the purity of milk and its adulteration. They are also

drilled in all the phases of butter making. *Lecture and laboratory work; two hours, first term.*

803. Judging live stock: The object of this course is to get the student familiar with the dairy and beef types of animals and to appreciate their difference in function and conformation. Work is also given in judging swine and sheep. Instruction is given largely by the use of the score card. *Laboratory, two hours, second term.*

JUNIOR CLASS.

804. Principles of feeding: The processes and requirements of the animal body are first considered, as the digestion and the utilization of food and conditions affecting them. Then the common feeding stuffs are considered and a study is made of their composition, their comparative value considered chemically and physiologically, and with reference to their fertilizing constituents. Work is given in compounding rations for the various kinds of live stock. *Lectures; two hours, second and third terms.*

805. Herd book study: This includes a study of the various herd books with a view to becoming familiar with the pedigrees of the leading strains and families of the different breeds of live stock. The second one-half of the term is devoted to judging hogs and sheep. *Laboratory; two hours, second term.*

SENIOR CLASS.

806. Principles of breeding: This course embraces the study of the principles of breeding live stock, including the study of variation, its extent and causes; heredity from statistical standpoint; selection; importance of fecundity, and the use, or abuse of in-breeding, cross-breeding, grading-up, with a presentation of the practical application of these principles to the breeder conditions. *Lectures; two hours, first term.*

807. Practical feeding: This course consists of a series of lectures, supplemented by reference reading, upon the most profitable methods of producing, finishing, and maketing swine, beef cattle, and lambs. Feeding dairy cows and marketing the dairy products are also given consideration. *Lectures; two hours, entire session.*

808. Meats: This consists of a study of the structure and composition of meats, quantity, cost, and food value of the various cuts of beef, mutton, and pork; exercises are also given in judging the carcasses of the different classes of animals. A study is made of how to home-dress and home-cure pork. Lectures

are given upon the effect of feeding and breeding of the animals as affecting the value of the carcass and the quality of the meat. *Laboratory; two hours, second and third terms.*

809. Judging horses and mules: Here the student is given an opportunity to become familiar with the various classes of horses and mules which are adapted to Alabama conditions and to study the conformation of each class. *Laboratory; two hours, first term.*

810. Live stock farm management: Only those seniors who are especially interested in live stock are expected to take this course. A study is made of methods of operating farms devoted chiefly to live stock production. *Two hours, second term.*

811. Dairying: This course is outlined to meet the requirements of the senior veterinary students. The student is made familiar with the Babcock tests, the use of the lactometer, the determination of lactic acid, churning and separating operations. The tests for the common adulterants are also made. *Two hours, second term.*

FIRST YEAR VETERINARY MEDICINE.

812. Live stock management: This course is outlined to meet the requirements of the veterinary students. It consists of a series of lectures on the care, housing, and management of horses, cattle, sheep, and swine. *Lectures; two hours, first term.*

813. Judging live stock: For the first year veterinary students. It consists in judging stock, special reference being given to horses and mules and dairy cattle. The object is to get the student familiar with the normal animal body in order that the abnormal or diseased conditions may be readily recognized. *Laboratory; two hours, third term.*

814. Feeding live stock: This course is offered for the benefit of the first year veterinary and special agricultural students. The food requirements of the animal body are first briefly considered. All through the course the practical, rather than the scientific, side of feeding is emphasized. Special reference is made to feeding horses and dairy cattle. *Second term.*

Ample opportunity and encouragement is extended to those students who wish to do postgraduate work in animal industry. With the completion of the new building there have been opened up fully equipped laboratories for work in this department. Applicants for graduate work will be assigned special research work in some line of animal industry and will be aided in their line of investigation.

THE DEPARTMENT OF SCHOOL AGRICULTURE OR AGRICULTURAL EXTENSION WORK

PROFESSOR DUNCAN.

ASSISTANT PROFESSOR HOBDY.

ASSISTANT BECHDEL.

ASSISTANT MISS DELLA STROUD.

The department of School Agriculture or Agricultural Extension Work was created in June, 1909, by the Alabama Polytechnic Institute, in co-operation with the United States Department of Agriculture, Washington, D. C.

There are three phases or lines of work for the agricultural colleges:

1. The experimental or research work which is conducted on the station farm and in the various laboratories.
2. Class room and laboratory teaching for students who come to college.
3. Outside teaching or extension work.

The National Country Life Commission appointed by the President in 1908 for the purpose of taking stock of country life conditions, in order that the President might make intelligent suggestions to Congress for legislation to improve these conditions, has, as one of its three final recommendations, the following to say about extension work:

"Each state college of agriculture should be empowered to organize as soon as practicable a complete department of college extension, so managed as to reach every person on the land in its State, with both information and inspiration."

Extension teaching includes work along the following lines:

1. Personal acquaintanceship in such a way as to arouse interest in farming.
2. Giving information by personal correspondence and circular letters.
3. The publication of leaflets and pamphlets along agricultural and other educational lines.
4. Co-operating with and assisting various organizations and societies having for their object the improvement of agricultural conditions.
5. Assisting and co-operating with schools, aiding them in

teaching agriculture, in improving school grounds and in making school gardens.

6. Arranging and directing reading courses for farmers and farmers wives.
7. Conducting demonstrations on the farms connected with schools.
8. Running educational trains.
9. Assisting in farmers' short courses and farmers' institutes.
10. Organizing boys' and girls' Farm-Life Clubs.
11. Conducting correspondence courses for farmers.

COLLEGE OF VETERINARY MEDICINE AND SURGERY

DEPARTMENTS

The College of Veterinary Medicine and Surgery comprises the following divisions:

Veterinary Medicine.
Physiology.
Surgery.
Anatomy.
Therapeutics.
Pathology.
Histology.
Bacteriology.
Obstetrics.
Infectious diseases.
Meat inspection.
Milk inspection.
Animal Parasites.

In addition, students in the College of Veterinary Medicine and Surgery receive instructions in other departments as follows:

English.
Chemistry.
Pharmacy.
Toxicology and Physiological Chemistry.
Animal Industry.
Botany.

By direction of the United States Civil Service Commission and Department of Agriculture, this college has been added to the list of accredited veterinary colleges, and placed in class A.

Veterinary Laboratory

VETERINARY MEDICINE AND SURGERY

PROFESSOR CARY.

ASSISTANT PROFESSOR MCADORY.

INSTRUCTOR HALLMAN.

INSTRUCTOR HOWELL.

INSTRUCTOR ELLIS.

LECTURER BAHNSEN.

PHYSIOLOGY AND VETERINARY SCIENCE

101. Physiology: The students in the regular and special agricultural courses, in all of the pharmacy courses, in the course in chemistry and metallurgy, and in the three-year course in veterinary medicine and surgery, all study elementary physiology. The aim of the course is to teach anatomy, histology, hygiene, and sanitation. The instruction is given by lectures, demonstrations, and text-book. Text-book, Hough and Sedgewick's Human Mechanism. *Two hours, entire session.*

102. Veterinary science (Elective): For students in agriculture. Lectures and chemical work in the junior year. In the senior year, the student may elect, with the consent of the professor in charge, six hours in the regular three-year veterinary course. The aim of the instruction given to the agricultural students is to teach such lessons as will enable them to prevent many diseases on the farm by correct hygiene and sanitation. At the same time, they will be instructed in the ways and means of treating and handling the common diseases of farm animals. This work will prepare them for the "first aid" treatment and emergencies as well as for the course in veterinary medicine and surgery. *Five hours, junior year; six hours, senior year.*

VETERINARY MEDICINE AND SURGERY.

The three-year course in veterinary medicine and surgery leads to the degree of Doctor of Veterinary Medicine. It is the outgrowth of fifteen years' work of the department of physiology and veterinary science. Moreover, it has been established to meet the demand of the young men of the South who desire to become educated veterinarians, and for students who desire to prepare for the study of human medicine.

EQUIPMENT.

The main veterinary building has an independent gas plant and a connected sewer system. It is supplied with electric lights and water. The building contains an office, two lecture rooms, a physiological laboratory, and a museum on the first floor; on the second floor, are located two research laboratory rooms, a library and reading room, a large lecture room containing an incubator room, and all the necessary apparatus for pathological, histological, and bacteriological work.

A separate building is used as a house for small animals (rabbits, guinea pigs, pigeons, etc.) that are employed for experimental and demonstration work in bacteriology, histology, and physiology.

The anatomy division has a separate one-story brick building with good ventilation and extensive sky light. It is supplied with gas, water, and electric lights. The anatomy museum contains the skeletons of man, the horse, the ox, the sheep, and the pig, and models of the limbs and special organs of man and the horse. It is also supplied with different lots of bones of the horse with dissected and dried limbs showing the relation and attachment of muscles. An hexagonal operating pavilion thirty-six feet in diameter has just been completed. It is supplied with water and electric lights and lockers for students.

The veterinary hospital contains five box stalls, four open single stalls, an office, and a feed room, on the first floor; a large room for storing hay, fodder, and feed, is found on the upper floor. The veterinary department has for its exclusive use about six acres of land divided into lots, pens and paddocks. In one of the lots, are located two large sheds having a capacity for accomodating one hundred and twenty-five cattle or large animals. These sheds are used for tick fever inoculation purposes and for isolation of animals affected with infectious diseases.

The three-year veterinary course students take five terms of work in the department of animal industry and dairying, one year's work in pharmacy; four terms of work in the chemical department, two terms' work in botany and one year's work in English. The facilities and equipment of these departments are excellent.

The veterinary course is especially strong in practical laboratory work.

1. In anatomy the work of dissection is continued through the first and second years and the first term of the third year.

It is a well established fact that useful surgical or real anatomy can not be acquired without careful and thorough work in the dissecting room. Special stress is given to comparative anatomy of the horse, ox, sheep, pig, and dog.

2. Clinical laboratory work is also required throughout the course. The clinical work comes six days in the week and the cases presented embrace mules, horses, cattle, sheep, dogs, poultry, and hogs. The variety is such as to illustrate a large number of diseases, surgical operations, and therapeutic applications.

3. The physiological laboratory is supplied with apparatus for tests and experiments in physiology.

4. The laboratory for pathology, histology, and bacteriology is extensive, and is fully fitted with the latest apparatus. This laboratory has been the outgrowth of nineteen years of cumulative additions. The aim is to teach students to work in the laboratory rather than to memorize the printed pages of the text-books.

5. In chemistry and toxicology the students work in one of the best of chemical laboratories.

6. In pharmacy, the students work in practical pharmacy for five hours a week for a year. In this they learn to recognize, compound, and dispense drugs.

7. The animal husbandry department affords ample facilities for practice in feeding and judging cattle, sheep, hogs, and mules.

8. The dairy department gives practical laboratory work in dairy operations and in handling and feeding dairy cattle.

9. The botanical department is well equipped and gives excellent opportunity for laboratory work.

10. The subjects in the course of study are such as are required in the leading veterinary colleges of America. The course meets the requirements of the American Veterinary Medical Association and the Bureau of Animal Industry and United States Civil Service Commission. It is the aim to have the teaching staff meet the requirements of the best standards. The length of the course is three years of nine months each.

FIRST YEAR.

103. Human physiology: Elementary human physiology. The instruction is given by lectures, demonstrations, and text-books. *Two hours, entire session.*

104. Histology: Deals with the minute anatomy of the various tissues. It includes methods of fixing, imbedding, sectioning, mounting, staining, and a microscopical study of the tissues.

Histology is studied by lectures and by laboratory work. *Five hours, first and second terms.*

105. Embryology: This is a study of the development of the embryo and is designed to prepare the students for the study and practice of obstetrics. *Five hours, third term.*

SECOND YEAR.

106. Veterinary physiology, recitations: Treats of the actions or functions of the various vital organs of the animal body. Attention is also given to the laws of health and the conditions most favorable to the healthy action of the animal body. *Two hours, first and second terms.*

107. Physiology laboratory: A part of the course deals with chemical physiology and the vital processes of the organs of the domestic animals. *Two hours, third term.*

108. Bacteriology: The principles of bacteriology and chief pathogenic organisms are carefully studied. *Three hours in class room and three hours in laboratory, first term and first half of the second term.*

109. Pathology: This deals with the general pathological anatomy and histology as observed in man and the different species of animals, and a study of the cellular changes in diseased tissues and organs. *Three hours recitations and three hours in laboratory, last half of the second term and entire third term.*

110. Obstetrics: Practical work is given as cases are presented. *Two hours, first and second terms.*

111. Special surgery: This includes surgery of the head, eye, neck, chest, limb, skin, abnormal organs, urino-genital system and castration. It consists of lectures supplemented by practical operations. *Two hours, second and third terms.*

Botany: A study of medicinal and poisonous plants. *Two hours, first and second terms.*

THIRD YEAR.

112. Surgical exercises: In these exercises the student is required to perform the principal surgical operations. *Two hours, second term.*

113. Infectious diseases: This is a study of the diagnosis and preventive sanitation of the animal plagues. *Two hours first term, three hours second term.*

114. Parasites: This subject deals with the parasitic infestations of man and animal. An abundance of material is available *Two hours, second and third terms.*

115. Meat inspection: Embraces recitations, lectures, and abattoir inspections in the smaller and larger cities of the State. *Two hours, first and second terms.*

116. Milk inspection: The course includes the study of milk adulterants, sanitary construction of dairy barns and dairy houses, conditions of cows and the diseases of dairy cattle; the feed, the water supply, the dairy cans, bottles and wagons, the disease and filth germs of milk. *Three hours, third term.*

117. Urinalysis: This course is largely laboratory work. *Three hours, third term.*

118. Toxicology: Is a study of the chemical, physical, physiological actions of poisons. The laboratory course embraces the official tests for poisons. *Seven hours, third term.*

Thesis: Development and preparation of an original theme on some subject relating to veterinary medicine and surgery, or veterinary sanitation and hygiene is required. *Four hours, entire year.*

FIRST, SECOND, AND THIRD YEARS.

119. Comparative anatomy: Based upon the descriptive anatomy of the horse. It includes lectures and dissection. The course in anatomy is continued in the dissecting room throughout the first and second years, and the first term of the third year. The work will be taken up in the following order:

(a) Osteology: Requires a thorough knowledge of the bones of the horse and the comparative variations as found in the ox, pig, dog and sheep.

(b) Arthrology: The course consists in a study of the joints or articulations and the synovial sacs.

(c) Myology: Includes a study of the muscles with their tendons and synovial sheaths or bursae.

(d) Splanchnology: Treats of the internal organs found in the thorax and abdomen. Special attention will be given to these subjects in the horse, ox, sheep, pig, dog and cat. It is designed both for the practitioner and meat inspector.

(e) Angiology. It treats of the blood vessels and heart and lymph vessels and glands. This is designed to meet the requirements of the practitioner and meat inspector; hence, the students must locate the lymph glands in the horse, ox, sheep, pig, and dog.

(f) Neurology: Calls forth a study of the cerebro-spinal, and sympathetic nervous systems.

(g) Special anatomy: Comprises the study of the organs of special sense, urino-genital organs, the foot, and the larynx.

120. Materia medica and therapeutics: A study of the principal drugs used in veterinary medicine, their doses, physiological actions, therapeutic uses, and prescription writing. *Third term of second year; and first and second terms of third year.*

121. General surgery: This course embraces the general principles of surgery. *Two hours, third term of second year; and first term of third year.*

122. Clinical laboratory: Free clinics. Students are required to study each. A great variety of cases are always presented. *One to two hours each day, second and third years, and three hours on Saturday for all classes.*

123. Veterinary medicine: This deals with the principles and practice of veterinary medicine. *Three hours, second and third years.*

124. Physiology and hygiene—Teachers' course: The department can give the following line of instruction to prospective Alabama teachers.

1. Structure of human body and animals.
   (a). Study of cells, tissues, and organs.
   (b). How to use the smaller animals in teaching naked eye anatomy
2. Physiological actions of the different parts and products of the animal and the human body. This embodies:
   (a). Functional tests.
   (b). Chemico-physiological tests.
   (c). Physico-physiological tests.
3. Hygiene, embracing instructions in personal health problems.
4. Sanitation, including health conditions of cities, homes, public buildings, farms, barns, dairies, etc.
5. Care of animals on the farm and in the city.

TEXT AND REFERENCE BOOKS.

General Chemistry—Remsen's College Chemistry.

Physiology Recitations—Hough and Sedgewick, and Lectures.

Physiology Laboratory—Fish's Elementary Exercises in Physiology; Smith's Manual of Veterinary Physiology.

English—To be announced in September.

Anatomy—Sisson's Comparative Anatomy.

Clinical Laboratory—Blank Books or Note Books.

Histology—Piersol, Bohm, Davidaff and Huber, Bailey, and Lectures.

Embryology—Hertwig-Mark; Minot. Lectures.

Livestock Management—Lectures and text-books to be announced later.

Feeding Livestock—Smith; Henry; Jordan.

Animal Husbandry—Craig, and Lectures.

Botany—Lectures; Pammel's Poisonous Plants.

Pharmacy—Lectures; and Stevens.

Bacteriology—Lectures; Moore's Lab. Guide, and Buchanan's Bacteriology.

Pathology—Ziegler; Kitt; Adami; Kingsley.

Obstetrics—Williams; DeBruin; Fleming; Dalrymple.

General Surgery—Lectures and Frohner; Moeller.

Special Surgery—Lectures; Moeller; Merillat; Frohner.

Surgical Exercises—W. L. Williams.

Materia Medica and Therapeutics—Wilcox; Winslow; Fish; Quitman.

Veterinary Medicine—Law. Vols. 1, 2, and 3, Moussu; Friedberger and Frohner.

Infectious Diseases—Moore—Law—Vol. 4.

Parasites—Neuman—Law. Vol. 5; Stiles; Kaupp.

Milk and Meat Inspection—Van Slyke; Conn; Ostertag; Peters; Edlemann-Eichhorn; Lectures.

Toxicology—Tanner; Fish.

Urine Analysis—Fish.

Restraint of Animals—White.

ORGANIZATIONS

CADET BAND.

A. L. Thomas, Bandmaster.

Three musical organizations are maintained—the band, the orchestra, and the glee club. Membership in these organizations is open to any student who has musical talent.

The band is maintained by the college for students who desire to develop their musical ability and for those who wish to learn music. It furnishes music for all college exercises and takes part in military manoeuvres. Regular and individual instruction is given free of charge during the first term, embodying the rudiments of music and general musical information in conjunction with the practical instruction on the instrument. Public concerts are given weekly during the second term, and engagements elsewhere are usually arranged.

A gold medal is given each year by the bandmaster to the member who makes the best record.

The orchestra is an organization for musical recreation, and members are carefully selected by the director, according to their musical ability.

The glee club, comprising the quartet, chorus, and stringed instruments, is a student organization.

The services of a musician are secured to assist with the instruction and training of the quartet and chorus. Two concerts are given at the college and a concert tour is usually arranged during the third term.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

E. S. King, General Secretary.

This association is regularly organized and a suite of well furnished rooms has been secured for its exclusive use. Through its weekly meetings and Bible Study Classes it exerts a wholesome Christian influence among the students.

Students are advised to unite with the association when they enter the college.

The ladies of the different churches in Auburn are organized into an auxiliary association to the Y. M. C. A. of the college.

The following are officers of the association:

H. C. Hanlin.......President

J. P. Tomberlin	Vice-President
Paul Minnis	Secretary
V. P. Atkinson	Treasurer
G. L. Campbell	Assistant Treasurer

LITERARY SOCIETIES.

There are two literary societies connected with the Institute—the Wirt and the Websterian. Each has a hall in the main building.

These societies hold celebrations on the evenings of Thanksgiving day and 22nd of February. A gentleman, selected by the faculty, is invited to deliver an address before the literary societies at Commencement.

To encourage the literary societies the trustees have directed that a medal be awarded on Commencement Day to the member of each society who is both efficient and regular in attendance, and who is the best debater. The method of selection is determined by the faculty.

SOCIETY OF THE ALUMNI.

The annual alumni oration is delivered by a member of the society in Langdon Hall on Alumni Day, Tuesday of Commencement week.

OFFICERS OF THE ALUMNI ASSOCIATION.

J. E. D. Shipp, Esq., '79, Americus, Ga.	Orator
C. L. Harold, '00, Montgomery, Ala.	President
R. D. Webb, '97, Auburn, Ala.	Secretary and Treasurer

Vice-Presidents.

B. B. Ross, '81	Auburn, Ala.
R. ap C. Jones, '87	Selma, Ala.
J. V. Denson, '05	Opelika, Ala.
W. M. Williams, '96	Montgomery, Ala.
F. L. Tate, '97	Wetumpka, Ala.
Thomas Bragg, '01	Auburn, Ala.
T. H. Frazer, '78	Mobile, Ala.
W. K. Terry, '89	Birmingham, Ala.
L. W. Wharton, '01	Gadsden, Ala.
H. Y. Hall, '00	San Francisco, Cal.
C. N. Ousley, '81	Ft. Worth, Tex.
P. S. Haley, '02	Corona, Ala.
A. H. Feagin, '01	Union Springs, Ala.
J. D. Foy, '01	Nashville, Tenn.
W. C. Coles, '02	Atlanta, Ga.
D. T. Herndon, '02	Little Rock, Ark.
T. W. Wert, '99	Decatur, Ala.

ENGINEERING SOCIETY.

All students in the courses of engineering and architecture are eligible for membership in the Engineering Society. Meetings are held twice a month, and the chief purpose of the society is to promote personal fellowship among the members, and closer affiliation with practical engineers. Prominent engineers in all lines are invited to address the society from time to time upon subjects connected with their work. At other meetings the program is supplied by the student members, thus giving opportunity for the students in one department to become somewhat familiar with the problems met with in other lines of engineering.

For the present, the meetings are held in Langdon Hall, but it is expected to provide suitable quarters for the society in the new Broun Engineering Hall. No regular dues are required of the members, but an occasional assessment is made to cover necessary expenses.

AGRICULTURAL CLUB.

The Agricultural Club was organized in 1907. All students interested in agriculture and the agricultural sciences are eligible for membership. The members of the Agricultural Faculty take an active part in the work of the club. Meetings are held once a week, and an effort is made to promote interest in all lines of agriculture, to develop a spirit of good fellowship among the students of the course, and to bring them in contact with prominent workers of the science as opportunity offers to present them on the regular program.

Meetings are held in the auditorium of Comer Agricultural Hall.

OFFICERS.

J. M. Moore	President
M. L. Moses	Vice-President
H. I. Brengle	Secretary
J. I. Handley	Treasurer
J. L. Liles	Critic
F. L. Jenkins	Librarian

GYMNASIUM AND ATHLETIC FIELD.

The gymnasium is situated at the west end of the athletic and drill grounds, and contains one room, 80x40 feet, with strong beams above for fastening the usual fixtures.

It is equipped with Spalding's gymnasium apparatus and is open to all students at stated hours, under the care of an officer.

The athletic field has a quarter-mile cinder track and ample space for football, baseball, and general athletics.

DRAKE ATHLETIC FIELD.

A new athletic field, named in honor of the Surgeon, Dr. J. H. Drake, has been provided for baseball, football, and track athletics. It is situated on the experiment station grounds near the gymnasium. It will be gradually beautified and equipped with necessary buildings and accomodations.

DISCIPLINE REGULATIONS.

The government of the college is administered by the president and faculty in accordance with the code of laws and regulations enacted by the trustees.

Each student upon entering is required to sign his name in the matriculation book and pledge himself to obey the rules and regulations of the college.

All students are required to wear the prescribed uniform.

Attention to study and punctuality in attendance on recitations and all other duties are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using or causing to be brought into the college limits, intoxicating liquors.

Students are not permitted to participate in any public entertainment, or game, without previously obtaining the consent of the faculty.

No student will be permitted without the approval of his parent or guardian, to take part in a public game of football.

No student who has failed in two or more subjects will be permitted to be absent from college for athletic contests or other purposes.

(a) Every absence from recitation or examination is graded zero.

(b) When the grade of a student is lowered by reason of absence, for which satisfactory excuse can be rendered, a special re-examination may be subsequently granted, and the grade made on the special re-examination alone is substituted for that previously received.

(c) Only sickness, as reported by the surgeon, or absence by reason of family sickness, or official or collegiate business, will constitute a satisfactory excuse for granting a re-examination.

When a student is called away from college by his parents for reasons other than those specified above, his zeroes for absence are not removed.

The term grade of a student is the average of his daily sessional and term examination marks, found by giving due weight to the term examination.

Only privates of the senior class in full standing who are candidates for graduation may be excused by the president from all military drills, and also students over twenty-one years of age *at the time of entering college* that are permitted to devote their time to one special study, as chemistry, agriculture, pharmacy, or engineering, provided the time devoted to drill is spent by them in laboratory work.

No student can remain an officer who receives during the session more than one hundred demerits.

BOARDING.

The students board at Smith Dining Hall or with families of the town of Auburn, thus enjoying all the protecting and beneficial influences of the family circle.

For each house an inspector is appointed, whose duty it is to report those who are guilty of any violation of order. The report of the inspector is made to the commandant at stated intervals.

Students, after selecting their boarding houses, are not permitted to make changes without obtaining permission from the president, and this permission is given only at the close of a term, except for special reasons approved by the parent.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the senior class are exempt.

The drills are short and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

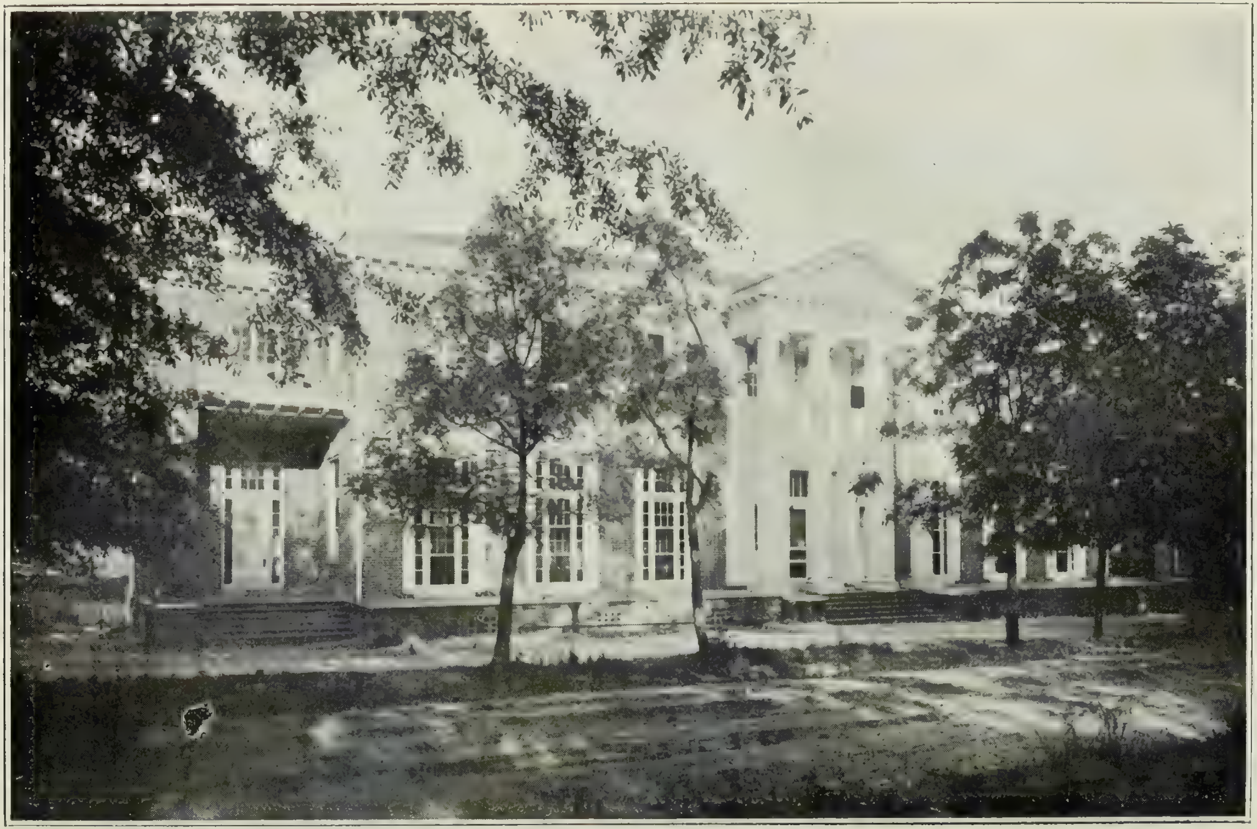
All students, unless excused on the written request of parents for religious scruples, are required to attend these exercises, and also to attend the church of their choice on Sunday morning.

Opportunities are also offered for attending Bible classes every Sunday.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above ninety per cent.

Certificates of distinction are rewarded in public on Commence-



O. D. Smith Hall

ment day to those who obtain an average of ninety per cent. in all the prescribed studies of a regular class; and also to those who obtain three distinctions in the freshman class, four in the sophomore class, five in the junior class, and six in the senior class; provided they have satisfactorily passed all the regular examinations of that session, and have not received forty demerits during the year.

A distinction is not given in the senior class if the average grade in any one subject is less than 75 per cent.

HONORS.

Members of the senior class who attain distinction at the final examinations with an average grade, in the subjects required, of 95 per cent. are published as *Graduates with Highest Honor.*

Those who attain distinction with an average grade of 90 per cent. and less than 95 per cent. are published as *Graduates with Honor.*

Those who attain less than 90 per cent. and more than 60 per cent. are published as *Graduates.*

Students of the classes lower than the senior who attain distinction with an average grade in the required subjects of 95 per cent. are published in alphabetical order as having attained *Highest Distinction.*

RECORDS AND REPORTS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

At the close of each term and at regular intervals reports giving the grade made by each student are sent to the parent or guardian.

EXAMINATIONS.

Written examinations on the studies of the half-term are held by each professor during the months of October, February, and April. Each examination occupies one hour.

At the end of each term written examinations, or written and oral, are held on the studies passed over that term.

Special examinations are held only by order of the faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters the college shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except for providential reasons.

HONOR SYSTEM.

During the session of 1910-11 the Honor System, which for years had been in effect in the higher classes, was adopted by the entire student-body of the institution, to apply to all work done in class room and on examinations. Under this system the student is pledged neither to give nor receive any assistance, whatsoever.

All students upon entrance subscribe to the Honor System as in force at this institution.

Proper regulations for administering the system have been adopted by the student-body.

The spirit of truth and honor, thus fostered in the examination room, is an efficient means of raising the scholarship, and tends to inculcate high ideals of honor among the students.

SCHOLARSHIPS—PRIZES.

The following scholarships and prizes have been established:

THE WILLIAM LEROY BROUN MEMORIAL SCHOLARSHIP, OF $170, established by the Alumni Society in memory of the late distinguished president of the Institute.

THE LIGON SCHOLARSHIP OF $170, established by Col. R. F. Ligon, Montgomery, Ala.

THE THOMAS SCHOLARSHIP OF $170, established by Judge William H. Thomas, Montgomery, Ala.

THE BALL SCHOLARSHIP OF $170, established by Mr. Fred S. Ball, Montgomery, Ala.

THE DUNKLIN SCHOLARSHIP OF $600, established by Mr. and Mrs. J. C. Street, Opelika, Ala., in memory of Prof. J. T. Dunklin, formerly professor of Latin in the college.

THE 1908 SCHOLARSHIP OF $150, established by the Class of 1908.

THE ALICE CARR SCHOLARSHIP OF $180, established for young women by the late Miss Alice Carr, Auburn, Ala.

THE RANSOM MEMORIAL SCHOLARSHIP OF $125 per year, established by the Alumni Association in memory of the late Prof. A. McB. Ransom, is available for students in the junior and senior classes of the course in chemistry and metallurgy.

THE JEWISH LOAN SCHOLARSHIP OF $1,000, established by a former student of the college.

A scholarship has been established for worthy musicians who are in need of assistance in defraying their college expenses.

The Henderson Scholarship of $100, established by Judge W. L. Henderson, of Miller's Ferry, Ala.

The Sidney Smith Memorial Scholarship of $100, established by his parents, Mr. and Mrs. Smith, of Bessemer, Ala.

The C. S. Yarbrough Scholarship of $1,000, established by Dr. C. S. Yarbrough, Auburn, Ala.

The scholarships enumerated above are loan scholarships, granted to worthy young men and women, to be returned after graduation.

THE ROBERT E. LEE MEMORIAL SCHOLARSHIP OF $100, an annual donation for the son of a Confederate veteran, established by the Children of the Confederacy of Alabama under the auspices of Mrs. Mary G. Pickens.

The above named scholarships and ten other scholarships are administered by the Alumni Society. (*For information, address R. D. Webb, Secretary.*)

THE ARCHITECTS' PRIZES, Medals to the two members of the senior class in the department of architecture who are most proficient in design. Established in 1911 by the Society of Architects in Alabama.

In 1911, first prize, *Robert Waddell Chapman,* Montgomery County. Second prize, *John Eayres Davis,* Mobile County.

THE ORATORICAL PRIZE, medal to that member of the junior class who composed and delivered the best oration on junior class day of Commencement.

1911. *John Lemley Liles,* Marshall County.

THE ORATORICAL PRIZE, for the Annual Inter-Literary Society contest, February 22.

1912. *Irwin Talton Quinn,* Marion County.

SOPHOMORE MEDAL IN DECLAMATION for Annual contest, May 1st.

1911. *James Edwin Livingston,* Macon County.

PRIZE FOR BEST DEBATER, a medal given annually by the Board of Trustees to the best debater in the Wirt and Websterian Literary societies each.

1911. Websterian Society, Julius Sylvester Blackburn, Lee County.
Wirt Society, Alfred Proctor Aldrich, South Carolina.

MUSIC MEDAL.

1911. *Saxon Pace Poyner,* Dale County.

BATTALION MEDAL, for the best drilled soldier.

1911. *Clyde Augustus Lowry,* Dallas County.

PRIZE FOR BEST DRILLED COMPANY, a sword given by Board of Trustees.

1911. *Grafton Lothrop,* Texas.

LIBRARY.

Librarian, James R. Rutland.

Assistant Librarian, Miss Lucile Virden.

A beautiful Carnegie library building of stone and pressed brick has been erected. The reading room is 80x40 feet, and the building is equipped with every convenience. It is lighted by electricity and heated by steam. The capacity of the stack room is sixty thousand volumes. The library now contains about 25,000 bound volumes, including valuable reference and scientific books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room and is thus made an important educational feature.

THE O. D. SMITH COLLECTION.

The library of the late Prof. O. D. Smith has been presented to the college by Mrs. O. D. Smith, and is preserved as a memorial to his long and distinguished services to the college.

THE F. D. PEABODY MEMORIAL ROOM.

Through the generosity of Mr. George Foster Peabody, New York City, an annual fund of fifty dollars, income from a permanent investment, is available for the purchase of books and furniture for the "F. D. Peabody Memorial Historical Seminary." F. D. Peabody, Esq., was a distinguished graduate of the Class of 1876.

THE W. D. TAYLOR MEMORIAL COLLECTION.

The engineering library of the late W. D. Taylor, chief engineer of The Chicago and Alton Railway, was bequeathed by him to the Alabama Polytechnic Institute, and is preserved by the college as a memorial to this distinguished alumnus. Mr. Taylor was a graduate of the class of '81, and was regarded as one of the leading civil engineers of the United States.

MUSEUM.

The Museum occupies a large room in the third story of the Main Building. It is provided with suitable cases and is equipped with valuable specimens and models of an instructive character.

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Board, including lodging, fuel, and lights, is furnished at $13.00 to $17.50 per month.

For non-residents of the state, there is a charge of tuition of $20.00 per session, payable on matriculation, in addition to the annual fees payable by all students.

The necessary expenses for a session, not including uniforms or books, are, for a resident of Alabama, as follows:

College fees	$ 15.00	$ 15.00
Laundry fee	12.50	12.50
Board, lodging, fuel, and lights	117.00	157.50
Total	$144.50	$185.00

By special arrangement with the college authorities, Mrs. M. L. Mitchell and Mr. B. T. Blasingame will accomodate students with board, lodging, and fuel for $12.50 per month.

This estimate does not include the cost of the uniform, $14.00, nor of books, say from $5.00 to $15.00, or the laboratory fees in the higher classes, $5.00.

LABORATORY FEES.

For each student in the junior or senior laboratory in pharmacy, chemistry, electrical, or mechanical engineering, a fee of $5.00 per session is required for each department. This fee is payable *on admission to the laboratory*, and is not remitted. In the department of veterinary medicine, a dissecting fee of $10.00 is charged.

Special students in laboratory work will pay additional fees for each separate division of work, and will be charged with all material consumed in experiments.

UNIFORMS.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made by a contractor, and are of excellent cloth manufactured at the Charlottesville mill. A suit, including cap, costs at present $14.00. It is neat and serviceable, and less expensive than ordinary clothing.

CONTINGENT FEE.

A contingent fee of $2.50 is required to be deposited by each student on matriculation to cover any special or general damage to college property for which he may be liable. General damages are assessed on the body of students.

At the close of the session, the whole of the contingent fee, or the unexpended balance, is refunded to the student.

AMOUNT OF DEPOSIT.

All fees, including laboratory fees, are payable on matriculation. *By order of the Trustees a matriculation fee of $12.00 is retained from deposit of students who withdraw.*

Fees to be paid on entrance:

Incidental	$ 5.00	
Library	2.00	
Surgeon	5.00	
Contingent	2.50	
Athletic	3.00	
Uniform	14.00	
Laundry fee for session	12.50	
For a resident of Alabama	$44.00	$44.00
Tuition non-resident		20.00
For a non-resident		$64.00

Besides the above, the student should deposit with the treasurer enough to pay for books, one month's board, incidentals, amounting to say $26.00. Hence a resident of Alabama should deposit with the treasurer $70.00; a non-resident, $90.00. For a student entering after January 1st, the deposit for laundry fee is seven dollars ($7.00).

FUNDS OF STUDENTS.

Parents and guardians are advised to deposit with the treasurer of the college all funds desired for sons or wards, whether for regular charges or college fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc.

The college cannot be held responsible for the expenses of a student unless the funds are deposited under specific instructions from the parent or guardian to the treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble and encourages idleness.

NON-RESIDENT STUDENTS.

Tuition for students, not residents of Alabama, is $20.00 per session, unless remitted by the trustees to worthy students upon the recommendation of the faculty.

The remission of this tuition fee to non-resident students will be granted in the form of a free scholarship for the succeeding year to those who obtain a distinction the preceding year, or who, by reason of merit, are deemed worthy.

This tuition for non-residents is remitted to sons of ministers of the gospel.

HONOR SCHOLARSHIPS.

The following non-resident students were granted, each by reason of special merit in conduct and scholarship during the session of 1910-11, an honor scholarship, which exempted from tuition fees:

Alfred Proctor Aldrich, Jr.	South Carolina
Walker Anderson	Florida
John Wood Alexander	Louisiana
Harris Mitchell Baker	Georgia
Cyril Macaulay Brennan	Georgia
Henry Irwin Brengle	Florida
Harry Price Dixey	Louisiana
Nolan Lewis Dudley, Jr.	Georgia
Claude Everett Edmiston	Florida
Calder Willingham Finney	Georgia
Emery Elgin Fry	Texas
Cecil Stewart Grimes	Georgia
Robert Lawrence Groover	Georgia
Chalmers Duke Horne	Florida
Felix Lloyd Jenkins	Georgia
Ernesto Felix Lopez	Mexico
Henry Turner Spence	Georgia
Chester A. Smith	Michigan
Wendell Holmes Tisdale	Florida
William Burley Tisdale	Florida
John Penn Tomberlin	Florida
Adiel Ernest Ware	Georgia

THESIS.

Each applicant for a degree is required to write and submit to the faculty a thesis, or oration, and read or deliver the same at Commencement, if required by the faculty.

There may be presented, with the approval of the professor in charge, a carefully written report of special work done in a laboratory, showing independent investigation and discussion of some subject.

It must be given to the Professor of English by the first of May. The subject must be submitted for approval by January 1st.

SURGEON.

The surgeon is required to be present at the college daily, to visit at their quarters the cadets that are reported sick, and give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering the Institute.

An infirmary has been established and will be properly equipped.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railroad.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tide-water. By statute of the State the sale of spirituous liquors and the keeping of saloons of any kind are forbidden.

ACADEMIC YEAR.

The academic year for 1912-1913 commences on Wednesday, September 4, 1912, and ends on Wednesday, June 4, 1913, which is Commencement Day.

It is divided into three terms; The first term extends from the opening of the session to Wednesday, December 18th; the second term begins Wednesday, January 2nd, and ends March 21st; the third term continues to the end of the session.

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VOL. VIII. NO. 2

THE BULLETIN OF THE

ALABAMA POLYTECHNIC INSTITUTE

AUBURN

CATALOGUE
1912-13

ISSUED QUARTERLY
BY THE INSTITUTE
APRIL, 1913

ENTERED AT POST-OFFICE, AUBURN, ALA., AS SECOND-CLASS MATTER

CALENDAR 1913–1914.

Examination for Admission Begins	Monday, Sept. 8, 1913
Session Begins	Wednesday, Sept. 10, 1913
First Term Begins	Wednesday, Sept. 10, 1913
Mid-Term Examinations	Oct. 27, 28, 29, 1913
Literary Society Celebration—Thanksgiving Day	Nov. 27, 1913
First Term Ends	Tuesday, Dec. 23, 1913
Second Term Begins	Tuesday, Jan. 6, 1914
Mid-Term Examinations	Feb. 7, 9, 10, 1914
Senior Class Exercises	Monday, Feb. 23, 1914
Literary Society Celebration	Monday, Feb. 23, 1914
Second Term Ends	Saturday, March 21, 1914
Third Term Begins	Sunday, March 22, 1914
Mid-Term Examinations	April 18, 20, 21, 1914
Senior Theses Reported	Friday, May 1, 1914
Sophomore Class Exercises	Friday, May 1, 1914
Field Day	Friday, May 1, 1914
Final Examinations Begin	Tuesday, May 26, 1914
Commencement Sermon	Sunday, June 7, 1914
Annual Meeting of Trustees	Monday, June 8, 1914
Junior Class Celebration, 10 A. M.	Monday, June 8, 1914
Military Exercises, 4 P. M.	Monday, June 8, 1914
Festival of Lights, 8 P. M.	Monday, June 8, 1914
Alumni Day	Tuesday, June 9, 1914
Military Exercises, 5 P. M.	Tuesday, June 9, 1914
Senior Class Celebration, 8 P. M.	Tuesday, June 9, 1914
Commencement Day	Wednesday, June 10, 1914

Main Building

CATALOGUE

OF THE

ALABAMA POLYTECHNIC INSTITUTE

STATE COLLEGE

FOR THE

BENEFIT OF AGRICULTURE AND THE MECHANIC ARTS

AUBURN, ALABAMA
1913

Opelika, Ala.:
Post Publishing Company
1913

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L. W. Shook, B. S.	Assistant in Animal Industry
J. T. Williamson, B. S.	Field Agent in Agriculture
H. M. Conolly, B. S.	Field Agent in Horticulture
L. W. Summers, B. S.	Assistant in Animal Industry
S. S. Jerdan, B. S.	Assistant in Beef Industry
A. R. Gissendanner, B. S.	Assistant in Swine Husbandry
S. I. Bechdel, B. S. (a)	Assistant in Agricultural Extension Work
Mrs. B. I. Robinson (a)	Assistant in Girls' Demonstration Work
L. J. Hawley, B. S.	Field Agent in Agriculture
S. Adler, M. S.	Assistant in Chemistry
J. A. Dew, B. S.	Field Agent in Entomology
I. B. Kerlin (a)	Assistant in Agricultural Extension Work
J. F. Duggar, Jr., B. S.	Assistant in Agriculture
J. M. Johnson, B. S.	Assistant in Animal Industry
J. E. Buck, M. S.	Assistant in Entomology
A. H. Kierce	Secretary to Director

(a) In co-operation with U. S. Department of Agriculture.

The Institute is a distinctive school of science and its application; being also the State College for the benefit of Agriculture and the Mechanic Arts, established by the State in 1872 by endowing it with the land-grant appropriation made by the United States Congress in 1862.

The leading object of the Institute, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and applications of science.

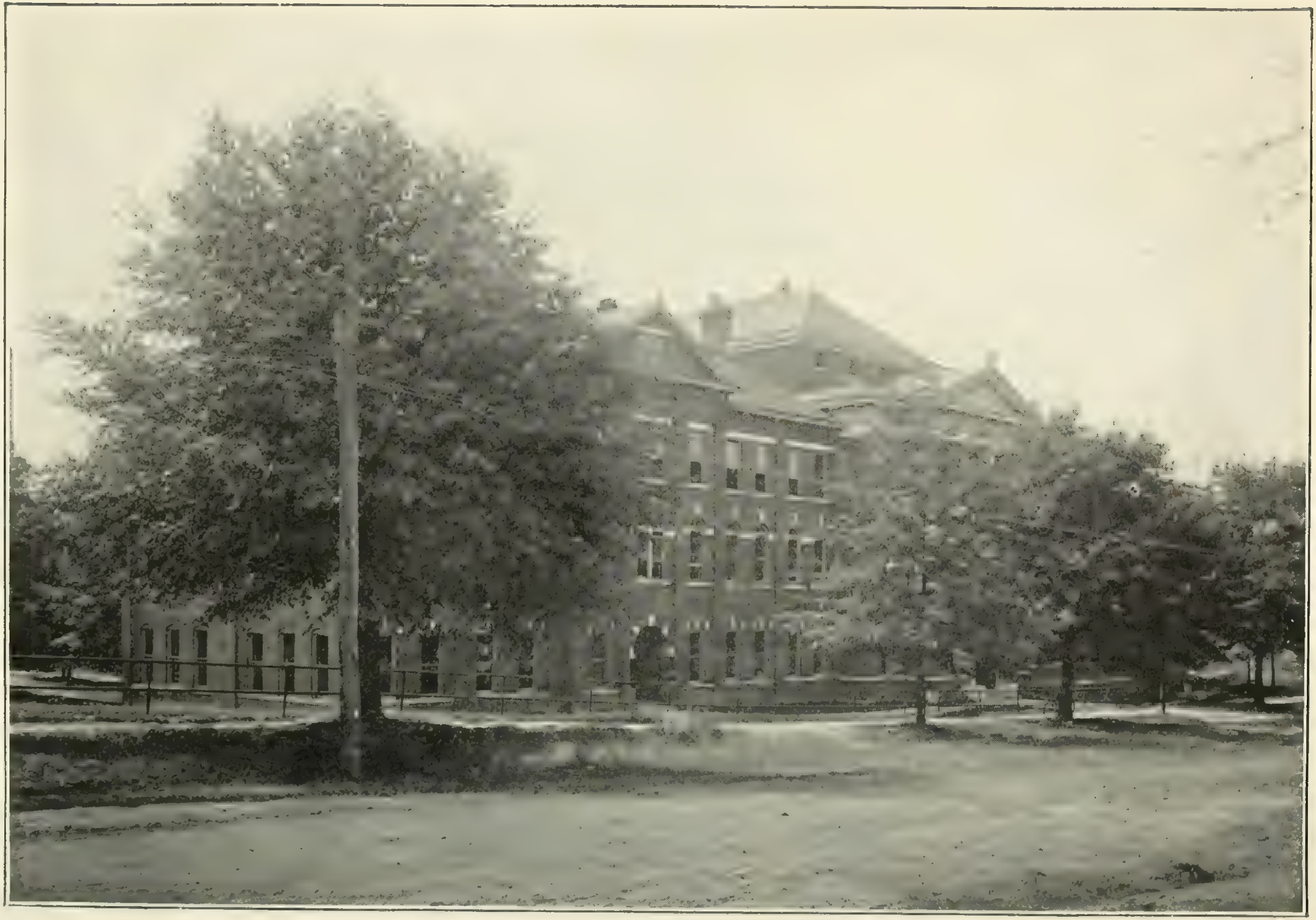
In its courses of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline and liberal education obtained by the study of language and other sciences are not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the faculty. The Institute thus endeavors to educate as well as to instruct, to form character as well as give information of value.



William LeRoy Broun Engineering Hall

LABORATORIES AND FACILITIES FOR INSTRUCTION

The Institute possesses facilities for giving laboratory instruction in English, history, Latin, and the departments of applied science:

COLLEGE OF ENGINEERING AND MINES.

I. Civil Engineering.—A flourishing department of civil engineering has existed in the Institute since its foundation in 1872. The department occupies four rooms; office, lecture room, and spacious drawing rooms. A large amount of practical work is given the students of this department in field work.

Summer Course.—An attendance upon two sessions of the four weeks' summer course, which offers practical work in plane and higher surveying and in engineering, is required of the students taking civil engineering and mining engineering.

The department is equipped with seven transits, six wye levels, one Dumpy level, one surveyor's compass, one railroad compass, one plane table, an ample supply of tapes, chains, levels and transit rods, hand instruments, and other necessary equipment. A complete camping outfit has been purchased, consisting of fourteen wall tents, each accommodating four students, forty folding camp cots, fifty camp stools, cooking utensils, dishes, etc.

II. Electrical Engineering.—In the new engineering building three rooms and an office are used by the department of electrical engineering. One of the rooms is a class room, another is used for the telephone laboratory, and the third is a laboratory for electrical measurements.

The wiring in this building is arranged so that alternating and direct currents of various voltages for power, lighting, and experimental purposes can be delivered to any room.

In connection with the laboratories there is installed a repair and construction shop furnished with a variety of hand tools and with power-driven machine tools.

(*a*) The electrical measurement laboratory is furnished with a variety of resistance boxes, bridges, galvanometers, standard cells, condensers, etc., as well as two photometers. In addition to the laboratory instruments proper, just noted, the department is provided with representatives of most of the types of commercial ammeters, voltmeters, and indicating and recording wattmeters, for A. C. and D. C. work. There is also a 30,000 volt transformer for break-down tests of insulating materials.

(*b*) The telephone laboratory is provided with a full line of telephonic apparatus, telephones, relays, condensers, plugs, jacks, lamp and other signals, etc., representative of the Bell and a number of independent telephone companies.

Single pieces are so mounted that they can be connected upin any desired manner and thus the connections of any particular system can be made up and tested out.

(*c*) The dynamo laboratory occupies another building. Power for experimental work in the dynamo laboratory is furnished by a 60 horse power, automatic, side crank, Harrisburg engine, belted to line shaft with clutch pulleys, a 15 horse power, variable speed, Westinghouse Type F. induction motor, with controller and special resistance grids, so that the motor may be operated under full load on any controller notch, and a 25 horse power Atlas engine.

The Atlas engine is equipped with a governor which permits the speed to be varied within wide limits without stopping the engine.

The laboratory is equipped with a large number of D. C. and A. C. generators, motors, and other appliances especially adapted for experimental work. In addition, the equipment of the power plant is so arranged as to be readily available for purposes of instruction and investigation.

III. Mechanical Engineering.—A very important adjunct to the text-book work in the mechanical engineering course is the laboratory or experimental work that the students do during the senior year.

The work in heat and steam engineering is carried on in the power house, and the following apparatus in available for instruction: A 35 horse power cross compound engine, especially arranged for experimental work; a Wheeler condenser, and a Worthington air pump and circulating pump; a 160 horse power American Ball angle compound engine; a 125 horse power tandem compound Buckeye engine; a 60 horse power Harrisburg simple engine; a 25 horse power Harris-Corliss engine; a 20 horse power Atlas engine, a 200 horse power Stirling boiler; a 100 horse power Heine boiler; a Deane duplex steam pump; a 4½ horse power gasoline engine; a 2 horse power two cycle gasoline engine; a 2½ horse power kerosene engine; an Ericsson hot air engine; a New York air pump; a Westinghouse air pump; an Ingersoll-Sargent air compressor; an electric headlight engine; indicators, calorimeters, thermometer, pyrometers, scales, steam gauges, and apparatus for testing steam gauges.

A room on the first floor of Broun Hall has been fitted up for a laboratory for the testing of materials. In it are installed a Riehle Brothers' testing machine arranged for making transverse, compression, and tension tests, and micrometer apparatus for measuring the deformation of the specimen under test. There is also provided a cement testing outfit consisting of a testing machine, sieves, briquette moulds, boiler and other apparatus for testing the strength, setting properties, fineness, and specific gravity of cement.

On the third floor of Broun Hall is located a laboratory for testing fuels, gases and lubricants. The present equipment consists of a fuel calorimeter to determine the heating value of fuels, complete apparatus for collecting and testing flue and furnace gases, the apparatus for determining viscosity, the specific gravity, the flash point and other properties of lubricating oils. A small electric motor has been installed to furnish power for grinding samples, furnishing air blast, stirring, and other such work.

IV. Mechanic Arts.—The instruction in shop work is used as an auxiliary in technical education, and as a school of manual training in the arts that constitute the foundation of most industrial pursuits. The work performed by the students is instructive in character, and is intended to give the greatest amount of instruction in principle with the least repetition of operations, and the smallest consumption of time. The work is executed from drawings, and the instructor in charge of the classes makes the lessons before the class, or gives such specific directions as may be necessary to enable the student to make them. This is supplemented by individual instruction.

All students in the freshman class take this shop work, three periods a week, each period being two hours long. The sophomore class takes two periods a week. The purpose is not to teach a trade, but to train the eye, the hand, and the mind to more perfect co-operation, a training which will be of value in any pursuit in life. This training involves the principles at the foundation of all trades, of equal value to the student who wishes afterwards to learn a trade.

Three-phase electric motors are used for driving the different shops, the motors receiving current from the large alternator in the dynamo room.

(*a*) The wood deparment is located in a room 90x50 feet, and is provided with a surface planer, a variety saw, a swing cut-off saw, a boring machine, and a grindstone. There are, in addition, thirty benches for carpentry work, with the necessary tools.

(*b*) The wood turning and pattern shop is located in a commodious room 40x60 feet, in the second story of the new power house. It is equipped with twenty-eight wood turning lathes, a grindstone, a band saw, a buzz planer, a pattern maker's lathe, a double circular saw, and a surface planer.

In each of these departments special tools for occasional use are kept in a tool room for the purpose.

In addition to the regular carpentry tools in the benches, each student is supplied with a set of chisels, and plane irons, with a locker to keep them in, and is held responsible for their care and condition.

(*c*) The forge shop is equipped with twenty-four down draft forges, with anvils, hammers, sledges, and other tools necessary for blacksmith work, including a punch and shear for cutting and punching iron, and a blacksmith drill. The blast is supplied by a blower which is also used for supplying the foundry cupola with blast. The smoke from the forges is removed through underground passages by a 60-inch exhaust fan and discharged into the chimney.

(*d*) The foundry is equipped with a 23-inch Colliau cupola, having a melting capacity of 2,000 pounds of iron per hour, the necessary molding tools for bench and floor work, benches, a core oven, ladles, molding flasks, a foundry crane, etc. There is also a brass furnace with crucibles, crucible tongs, and the appliances necessary for making brass castings.

(*e*) The machine-shop is a room 30x100 feet, and is equipped with nine 14-inch, two 16-inch and one 18-inch engine lathes, one 10-inch speed lathe, a 20-inch drill press, a 10-inch sensitive drill, a 16-inch shaper, two iron planers, one 22-inch by 5-feet and the other 26-inch by 6-feet, a back geared universal milling machine, with vertical milling attachment, a water tool grinder, a bench grinder, a universal grinding machine, a universal cutter and reamer grinder, a twist drill grinder, and a power hack saw. Three of the engine lathes have compound rests, three have taper attachments, and one is fitted with a turret and a large number of special tools and fixtures which practically convert it into a manufacturing lathe, and serve to illustrate the methods of manufacture by duplicate parts.

For chipping and filing, eighteen benches are fitted with vises and each student is supplied with hammer, chisels, files and such other tools as he may need, and a locker in which to keep them. A gasoline engine is installed in one end of the shop, and is used for driving when the steam plant is not running.

The tool room is supplied with general machinist tools, such as chucks, drills, reamers, taps, dies, gauges, jigs, and special tools. A convenient room is supplied with lockers for keeping clothes, and basins supplied with hot and cold water for the use of the students. The different shops are equipped with electric lamps, and current is furnished when necessary.

V. Mining Engineering, Geology, Mineralogy.—The department of mining and geology occupies the west half of the new three-story engineering building. The third floor is divided into two well lighted rooms: (1) for lectures and recitations; (2) for draughting. The lecture room is provided with seats to accommodate sixty-four students. In this room is a screen and electric stereopticon lantern for illustrating lectures. The draughting room has a capacity for thirty. Here the student receives instruction in mechanical draughting and in the calculation and plotting of field notes.

The second story is occupied by the professor's office and the mineralogical laboratory. The latter, like each of the two rooms on the third floor, occupies a floor space of about 960 square feet. In this laboratory there are accommodations for thirty-six. Each student is supplied with a blow pipe outfit, a drawer, and a locker, and each desk is piped for gas. The laboratory is equipped with a good type collection of minerals and lithological specimens, as well as working specimens. There is a collection of fossils and casts illustrating the subject of historical geology. A very useful set of about 100 wooden models of crystals has been imported. The geological department has several specific gravity balances of various kinds, contact and reflecting goniometers, a petrographical microscope, a good collection of slides both for the petrographical microscrope, and the stereopticon lantern.

VI. Ore Dressing.—The ground floor is occupied entirely by the metallurgical laboratory. This laboratory is well equipped with ore dressing plants. The concentrating plant consists of a gyratory crusher, two sets of roll crushers, two bucket elevators, four trommels or revolving screens, two classifiers, four Hartz jigs, and a seven-foot Wilfley concentrating table.

The stamp mill is of the full size Nissen type, circular discharge and interior amalgamating plate. The outside amalgamating plate is of full size, being ten feet long. The stamp mill and concentrating plant are fed from their respective bins by two different types of automatic feed. The ore before entering the bin is crushed to proper size by a Blake jaw crusher. The Model Cyanide plant illustrates the bleaching department of the cyanide process and the extractor box work. It consists of one solution tank, two sand tanks with false bottoms and filters, one gold tank, and a set of extractor box compartments of the up-flow type.

Besides the equipment already mentioned there is an automatic sampler. The cement floor in this department gives a good surface for illustrating coning and quartering in the process of hand sampling.

A twenty horse power motor is the source of power for this laboratory. Shafting, belting, and gears of various kinds transmit the power to the various machines so that a large variety of mechanism is illustrated.

VII. Architecture.—The department of architecture is located in three well lighted rooms in the Main Building. A floor space of 2,250 square feet is occupied by a lecture room, 25x30, a large draughting room, 30x35, a room for freehand drawing, 25x25, and a library, office, and special draughting room, 15x30, all connected by doors. These rooms are well furnished with large, substantial drawing tables and extra tables for freehand drawing, fixtures and additional equipment; a collection of selected plaster casts of classic sculpture and architectural details, a large number of architects' drawings and signed original plates, and several hundred examples of freehand drawings of various sorts; a library of standard works and portfolios of plates illustrating details of decoration and composition; four hundred lantern slides and many photographs of notable monuments of architecture; manufacturers' samples and catalogues; and various current journals devoted to architecture and the allied arts.

VII. Mechanical Drawing and Machine Design.—The department of mechanical drawing and machine design is supplied with equipment for teaching mechanical drawing, descriptive geometry, kinematics, and machine design.

A convenient cabinet is supplied with a complete set of Schroeder's descriptive geometry models for demonstrating the principles of descriptive geometry and mechanical drawing. A small reference library and a library of selected catalogues of manufacturers, which is being established for the use of students in advanced machine design, occupy a suitable case. A Beck vertical wall file, 36x48 inches, for filing commercial blue-prints, is filled with selected blue-prints furnished by prominent manufacturers, and is made use of by students in machine design.

A number of kinematic models and a large collection of engineering specialties, sectioned to show interior, which were donated by the various manufacturers, occupy a sectional case, and are used in elementary work in machine design and mechanical drawing. The filing envelopes, which contain the students' drawings, are kept in alphabetical arrangement in a case of drawers.

This department is equipped with an outfit for making blue-prints, consisting of two sun printing frames—18x24 inches and 30x42 inches, each mounted on a car and track, and suitable convenience for washing and drying the prints.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye, and hand to accuracy of observation and execution. Four large well-lighted drawing rooms, which will accommodate (at one period) two hundred and fifty students, are provided with tables, lock boxes, etc. The drawing rooms have been equipped with one hundred and fifty new drawing tables of the most modern pattern.

COLLEGE OF AGRICULTURAL SCIENCES.

IX. Practical Chemistry.—The chemical apparatus recently purchased for the chemical laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to the first-class laboratories, there have been imported a new and improved Schmidt and Hensch's polariscope, ten short-arm balances of latest pattern, Bunsen's spectroscope, Abbe refractometer, and other instruments for delicate and accurate work.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of special value to advanced students, and afford them unusual opportunities to learn the methods of scientific research.

The building contains a large general laboratory, that accommodates sixty students, a special laboratory for seniors that will accommodate thirty students, a lecture room with a capacity of one hundred and fifty seats, and nine other rooms, all appropriated to instruction and research in chemistry.

The State chemical laboratory for the official analysis of fertilizers is connected with the department.

X. Agriculture.—The agricultural experiment station, established in connection with the Institute, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professors in the field, where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

The farm contains 304 acres.

XI. Botany.—The laboratory plant for morphology and histology adjoins the lecture room of the professor, and is well equipped for investigation along these lines. The experimental work in plant physiology and pathology is conducted by the students in the laboratory and adjacent greenhouses, which are well equipped for this important line of work.

A botanic garden is being developed and it is the intention to add as rapidly as possible representatives of the native flora of this state, and a good collection of the native medicinal plants. In this manner it is planned to secure from the garden the maximum assistance in the work of instruction. Special work in plant breeding and biometry will also be conducted in this garden.

XII. Pharmacy.—The laboratory of this department occupies the first and second floors of the annex to the chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations. The equipment for the laboratory includes a Laurent Polariscope; a Pulfrich refractometer; a vacuum distilling and drying apparatus, consisting of ½ horse power air pump, vacuum chamber, condenser, and Bruhl receiver for fractional distillation under diminished pressure, a three-horse power electric motor, a complete outfit for organic combustion work, and three chemical balances.

The new pharmaceutical laboratory on the basement floor of the pharmaceutical building is fitted with steam, and has a full equipment for reserch work in pharmaceutical chemistry.

The students work in the laboratory with the professor, from five to eight hours, six days in the week.

The facilities are increased as means are available.

XIII. Horticulture.—A plot of twenty acres is devoted to orchards, vegetables, fruits, flowers, and grapes. There are well appointed greenhouses, fitted with modern apparatus for ventilation, heat, etc. Accurate experiments are conducted in this department in fruit growing and the culture of the various vegetables adapted to this climate. The students are given in this laboratory practical instruction in grafting, budding, spraying, fertilization, gathering and marketing crops. Valuable co-operative work with the United States Agricultural Department has been undertaken in this department.

XIV. Entomology.—The completion of the new agricultural building makes excellent provision for laboratory work in this subject. The department is well equipped with apparatus for the microscopic work in entomological subjects. An excellent equipment for photographic and photomicrographic work is provided and instruction in these subjects will be given as occasion may arise. The laboratory work is closely related to the lecture work in most cases. Special attention is given to the structure and classification of insects, designed especially to familiarize the student with the principal groups in which insects are divided, and to give a basis for the selection of a proper method of treatment for their control.

The laboratory work includes also practical exercises in the preparation of the most important insecticides with proper types of construction in apparatus for applying various insecticides, and in a general way, making the student familiar with practical insecticidal work. There are also various exercises in the collection of insects and in the study of various pests which occur in the vicinity.

A reference library containing many general works upon entomology and important publications of the national bureau of entomology and of the state experiment stations is always accessible to students.

XV. Animal Industry.—The animal industry farm contains about 260 acres; upon this farm is a dairy barn, which accommodates eighteen cows and a beef cattle shed. The students visit the barns and sheds with the instructors and are thus afforded an opportunity to study the various breeds of live stock and to do stock judging work. In addition to the pure breeds of cattle, sheep and swine upon the farm, there are always graded and scrub animals, which are used in the experimental work in feeding, breeding, etc. All of this stock is used in instructional work.

ACADEMIC WORK.

XVI. History and English.—All advanced work in history is conducted by the laboratory method. This plan has been successfully employed in the junior, the senior, and the graduate classes. A large and well lighted room has been set apart for this work in the new library building, where all the resources of the rapidly growing library are easily accessible. This room is equipped with maps, diagrams, charts and suitable tables and chairs. The library is a depository for all government publications. These and other books on American history, with which it is well supplied, offer abundant material for research work in the history of our country. The publications collected by the experiment station constitute valuable material for study in industrial history.

Opportunity is also offered for laboratory work in English in the sophomore class. The work includes constant practice in writing and an independent study of the various forms of discourse, narrative, descriptive, expository, and argumentative.

XVII. Physics.—The physical laboratory occupies two rooms, one of these being permanently darkened for experimental work in light. It is equipped with numerous standard instruments of precision, such as verniers, micrometers, cathetometers, an horizontal comparator, a Kater's revision pendulum, balances, etc., and a quantity of minor apparatus. Recently there have been added a concave grating spectograph, a large induction coil of 12-inch spark, and other apparatus of value.

XVIII.—Military Tactics. —Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition, the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties. The department is supplied with cadet rifles and accoutrements for the corps.

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

XIX. Physiology and Veterinary Science.—The veterinary department occupies a separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, thoroughly equipped laboratories for work in bacteriology, milk and meat inspection, and with museum containing skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

There is a separate dissecting room with cement floor and north roof light, constructed especially for this department. This laboratory is used by the professor and students each afternoon for three months.

BUILDINGS.

The frontispiece is a representation of the Main Building. This building is 160x71 feet, and contains forty-five rooms. It contains lecture rooms, administration offices, physical laboratory, museum, armory, etc.

LANGDON HALL.

This is a two-story building, 90x50 feet. The second story is the audience hall, used for commencement and other public occasions.

ELECTRICAL AND MECHANICAL LABORATORIES.

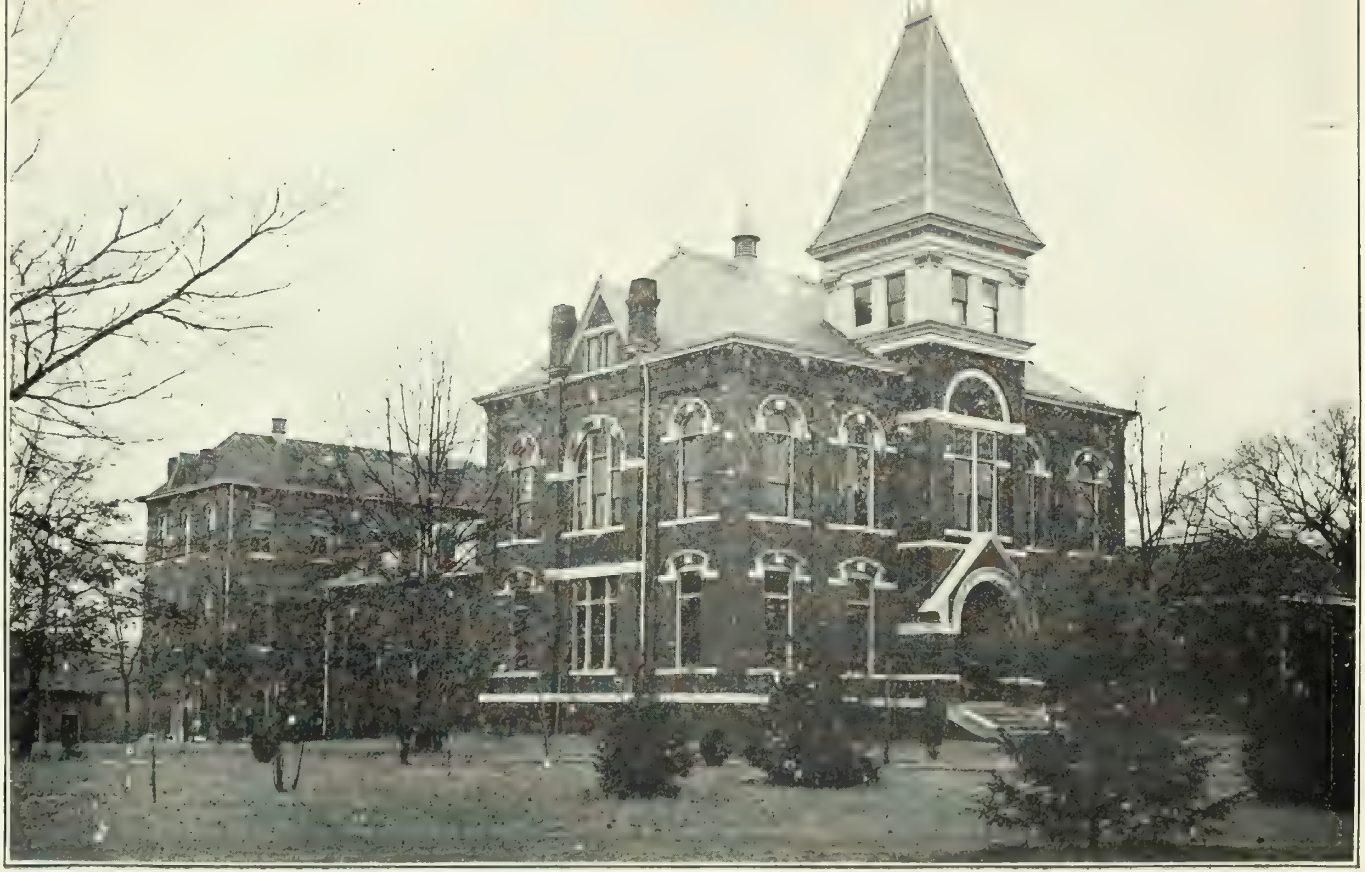
The first story of Langdon Hall is appropriated to the laboratory of first year wood work in mechanic arts.

The machine shop, forge shop, foundry, and boilers are installed each in separate buildings. A handsome building, two stories in height, pressed brick and stone trimmings, has been recently constructed for occupation by the power plant on the first floor and by the pattern making department on the second floor. The dynamo laboratory occupies a separate building.

BROUN ENGINEERING HALL.

The alterations and additions to the William LeRoy Broun Engineering Hall were completed and the building occupied in September, 1910. The finished structure is 250 feet long, 50 to 90 feet deep, and three and four stories in height, enclosing a floor area of 43,500 square feet. In construction this building is practically fire proof, and in exterior design conforms in general to the other buildings on the campus. The walls are laid up in selected red brick, with limestone and terra cotta trimmings.

Offices, lecture rooms, and laboratories for the departments of mechanical, electrical, mining, and civil engineering, machine design, and drawings are located within this building, and all the interior



Chemical Laboratory

accommodations are especially arranged to facilitate the special work of each department.

Expansion into fully equipped and commodious laboratories will very naturally increase the efficiency of the College of Engineering and Mines. This building, an illustration of which appears on a preceding page, was designed and superintended by the department of architecture.

CHEMICAL LABORATORY.

As shown on the opposite page, this is a two-story structure, 40x60 feet, with a rear projection, 35x60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings, and terra cotta ornamentation.

The main laboratory will accommodate sixty students and contains improved working tables, with water, gas, and every necessary appliance for chemical work. The laboratory for advanced work in chemistry will accommodate thirty students, and is equipped in the same manner. Adjoining this are two rooms which are used respectively as a balance room, and a room for work with spectroscope, polariscope, etc. The second story contains a lecture room with seats and tables for one hundred and twenty students. Around the lecture room are cases containing crude and manufactured products, illustrating agricultural and mechanical chemistry, prominent subjects taught in the institution.

In the basement are ample accommodations for assaying and storage.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building, containing rooms for pharmacy and drawing.

The chemical laboratory for the agricultural experiment station occupies a building 60x26 feet, and is appropriated exclusively for chemical investigation and research.

SMITH HALL.

The Otis D. Smith Dining Hall, constructed of stone and pressed brick, is two stories in height, and one hundred and forty feet in length. It will accommodate three hundred in the dining hall, and forty in the dormitory above. The style is semi-colonial, and is quite attractive.

CARNEGIE LIBRARY.

The library building is a handsome structure of classical outline monumental in its general effect. It is presented in an accompanying cut.

AGRICULTURAL BUILDING.

A handsome and commodious building has been erected for the departments of (1) agriculture, (2) horticulture, (3) botany, (4) entomology, and (5) animal industry, together with a separate set of buildings for practical work in each of these departments. It is the general opinion that there is no superior, if equal, group of buildings for agricultural purposes in the South. The building is three stories in height and is constructed of pressed brick with stone trimmings.

Campus Scene

GRADUATES

CLASS OF 1912

HONORS

Members of the Senior Class who attain distinction with a grade of 95 per cent. are Graduates with Highest Honor. Those who attain a distinction with a grade of 90 per cent. and less than 95, are Graduates with Honor. Those who attain less than 90 per cent. and more than 60 per cent. are Graduates.

DEGREES

BACHELOR OF SCIENCE

GRADUATES

Alfred Proctor Aldrich, Jr	South Carolina
Edward Sholl Allen	Jefferson
Clarence Pax Andrew	Georgia
James William Lee Benson	Mobile
Bernard Decker Boatright	Georgia
George Allen Brewer	Tallapoosa
Henry Wells Brooks	Georgia
Roland Lee Brooks	Georgia
George Patrick Brown	Jefferson
Taylor George Burke	Montgomery
Fleming Cayce Burns	Lauderdale
William Frederick Cobb	St. Clair
Charles William Crumly	Jefferson
Sidney Shalar Daniell	Georgia
William Wilfred Davies	Jefferson
Edward Alonzo Dillard	Lee
Thomas Floyd Drew	Georgia
John Jennings Dunlap	North Carolina
Jessie Floyd	Lee
Samuel Cheatham Harrell	Lee
John Emmett Harris	Wilcox
John Michael Johnson	Elmore
Robert Austin Jones	Montgomery
George Alston Kellum	Shelby
Joseph Ketzky	Montgomery
Pieter Koch	South Africa
John Russell Liddell	Wilcox
Roy Miller Lilly	Lee

Oleon Albert Miller	Jefferson
Frank George Mullen	Talladega
Malcolm Eugene Morgan	Jefferson
Thomas Bragg Myers	Texas
Arthur Bernhart Newman	Madison
Millard Fillmore Nixon	Marshall
John Emmett Pitts	Russell
John Cunningham Postell, Jr	Georgia
Alfred Wayne Reynolds	Barbour
James Benagh Richardson	Limestone
Raymond Grover Ridgely	Florida
David Clare Rumph	Georgia
Charles Edward Sauls	Georgia
Lewis Arthur Scarbrough	Georgia
Frank Paul Schone	Germany
Olin Herbert Sellers	Lee
Claude Winchester Shelverton	Georgia
Willie Lee Sims	Marshall
Hazen Eager Smith	Autauga
Harrell Walton Smith	Jefferson
Marshall Charles Smith	Wilcox
Roger Downs Smith	Jefferson
Gordon Hall Steele	Lee
Thomas Willburn Taunton	Chambers
Charles Numa Thibaut	Louisiana
Ernest Chatterton Thomas	Lee
Otto Wilson Tidwell	Lee
John Walden	Georgia
William Collins White	DeKalb
Thomas Holmes Whitfield	Marengo
Hugh Hardy Williamson	Lowndes
Paul Bernard Williamson	Montgomery
Claud Rodolphus Wood	Marion
George Taylor Wyche	Montgomery

GRADUATES WITH HONOR

Henry Irwin Brengle	Florida
Cyril Macaulay Brennan	Georgia
Franklin Richards Curtis	Arkansas
John Frederick Duggar, Jr	Lee
Henry Wiley Grady	Chambers
Velma DeForest Hartley	Blount
Felix Lloyd Jenkins	Georgia
John Lemley Liles	Jefferson

James Monroe Moore	Fayette
Willis Belmont Nickerson	Tallapoosa
Chester A. Smith	Michigan

GRADUATES WITH HIGHEST HONOR

Walker Anderson, Jr	Florida
Joseph Calloway, Jr	Montgomery
Samuel Ridgely Cruse, Jr	Madison
Frances Camp Duggar	Lee
Joel Clarence Ford	Marion
Charles Coleman Thach, Jr	Lee

PHARMACEUTICAL CHEMIST (PH. C.)

GRADUATES

Milner Hubbard Eskew	Dallas
Jemison Mims Moseley	Dallas

GRADUATE IN PHARMACY (PH. G.)

GRADUATES

James Edward Barnes	Dale
Herbert Clayton	Pike
Coleman Ferrell Driver	Lee
William Clyde Gilchrist	Crenshaw
Louis Howle	Calhoun
Jesse Josey	Covington
William Charles Malone, Jr	Talladega
David Renwick Murray	Jefferson
Charles Stuart Stirling	Pickens
Clyde Quitman Tervin	Walker
Adolphus Evadnah Williams	Elmore

DOCTOR OF VETERINARY MEDICINE (D. V. M.)

GRADUATES

Archibald Strickland Boyd	Sumter
Dillard Orsen Browning	Montgomery
Berney Sumner Clay	Jefferson
James Madison Luke	Sumter
Marion Elerson Meadows	Lee
Adolphus Moore	Perry
James Frederick Park	Limestone
Malcolm James Rattray	Cherokee
Claud William Marcelline Ressijac	Mobile
William Lee Stroup	Morgan
Thomas Lee Wright	Lee

POST-GRADUATE DEGREES

MASTER OF SCIENCE

Samuel Adler	Calhoun
Riley Gilbert Arnold	Marion
Edward Tarleton Collier	Montgomery
Albert Burton Moore	Fayette
Frank Lawrence Owsley	Elmore
Parker Preston Powell	Choctaw

MASTER OF SCIENCE IN ARCHITECTURE

Dabney Otis Collins	Hale

PROFESSIONAL DEGREES IN COURSE

MECHANICAL ENGINEER

Miles Augustus Askew	Marengo

ELECTRICAL ENGINEER

James William Bivins, Jr	Georgia
Benjamin Allen Wooten, Jr	Marengo

CIVIL ENGINEER

Leonard Maurice Blumenfeld	Lee
William Smith Bonner	Clay
Cedric Errol Faber	Georgia
James Lane Henderson	Jefferson

DEGREES FOR PROFESSIONAL WORK

CIVIL ENGINEER

George Clement Sequeira	Louisiana
William Mason Wilson	Georgia

DISTINGUISHED STUDENTS

SESSION 1911–'12.

Students who receive a grade of above 90 per cent. and less than 95 in three studies in the Freshman Class, in four in the Sophomore Class, in five in the Junior, and in six in the Senior, are distinguished for excellence in scholarship, and are awarded Certificates of Distinction. Those who receive a grade above 95 per cent. are awarded Certificates of Highest Distinction.

FRESHMAN CLASS

DISTINCTION

Edward Amende Allen	Jefferson
Robert Emerson Bailey	Calhoun
Samuel Bragg Brewer	Tallapoosa
Alfred Lee Harrell, Jr	Chambers
Charles Burton Hollis, Jr	Georgia
Russ Wilbur McDuffie	Geneva
James McCoy Oliver	Tallapoosa
George Washington Owen, Jr	Florida
Nelson Wilmer Proctor, Jr	Jefferson
William Glenn Rushing	Escambia
Furman Leffell Tucker	South Carolina
Arthur Pearce Turner	Colbert
Homer Herd Turner	Colbert
Ira Davis Vail	Greene

HIGHEST DISTINCTION

William Robert Ellett	Madison
Daniel DeKalb Gibson	Clay
Crawford Buchanan Hawkins	Mississippi
John Boyd Overstreet	Kentucky

SOPHOMORE CLASS

DISTINCTION

Marion Augustus Baldwin	Bullock
Edwin Fry Barry	Texas
Jackson Frederick Bazemore	Coosa
Benjamin Paul Blasingame	Lee
Frank Ewell Boyd	Chambers
Peter DeMarkus Burks, Jr	Dallas
Charles Hadley Cooper	Georgia

Charles Washington Culpepper	Randolph
Harry Price Dixey	Louisiana
Augustus Tompkins Graydon	South Carolina
Joe John Haralson	Lee
Robert Carl Hill	Sumter
Marvin Henry Killingsworth	Shelby
John Rush Lester	Georgia
Robert Holloway Martin	Escambia
Ivan Wilfred Miller	Walker
Paul Minnis	Mobile
McClellan Ratchford	Chambers
Frank Park Samford	Montgomery
Otto Seyforth	Madison
Murrell Edward Shields	Mobile
William Burley Tisdale	Florida
Wendell Holmes Tisdale	Florida
Henry Asa Vaughan	Marengo
John Winfield Williams, Jr	Lee

HIGHEST DISTINCTION

Marcus Williams Crenshaw	Limestone
Enoch Dortch Fly	Jefferson
Robert Edward Herring	Tennessee
Herbert Marshall Martin	Florida

SPECIAL STUDENTS

DISTINCTION

Virgil Pettus Atkinson	Limestone
Phœby Cary	Lee

HIGHEST DISTINCTION

Homer Walter Jones	Jefferson

JUNIOR CLASS

DISTINCTION

Henry Grady Floyd	Lee
Emory Elgin Fry	Texas
Henry Harmon Heine	Talladega
Edmund Clark Leach	Tallapoosa
Rupert Alonzo McGinty	Jefferson
Judson Eckford Moses	Marion
Frederick Moss Nelson	Franklin
Boyd Shaver	Montgomery
John Gordon Sparkes	Jefferson
Henry Turner Spence	Georgia
Dee Grandville Sullins	Marion
Derwood Lee Taylor	Lee

HIGHEST DISTINCTION

Hugh Carey Hanlin	Colbert
Isaiah Daniel Lewis	Bibb
Victor Wallace Lewis	Bibb
Ralph Waldo Riddle	Jefferson
George Vaughn Stelzenmuller	Baldwin

CATALOGUE OF STUDENTS

SESSION 1912–13

GRADUATE STUDENTS

Fleming Cayce Burns	Lauderdale
Frances Camp Duggar	Lee
John Frederick Duggar, Jr	Lee
Milner Hubbard Eskew	Dallas
Finley McCorvey Grissett	Georgia
Allen Glover Holder, Jr	Clarke
Mary Hal Hollifield	Lee
John Michael Johnson	Elmore
George Alston Kellum	Shelby
Thomas Burton Meadows	Cullman
Jemison Mims Moseley	Dallas
Willis Belmont Nickerson	Tallapoosa
John Emmet Pitts	Dallas
Alfred Wade Reynolds	Barbour
Raymond Grover Ridgely	Florida
Lewis Arthur Scarbrough	Georgia
Chester A. Smith	Michigan
Charles Coleman Thach, Jr	Lee
Homer Bernard Tisdale	Conecuh
Benjamin Allen Wooten	Marengo
Thomas Parks Wright	Jefferson

SENIOR CLASS

Fritz Thomas Ambrose	Bibb
Lawrence Cary Amos	Conecuh
Sidney Russell Amos	Conecuh
Winston Paine Anderson	Jefferson
William Webster Bagley	Georgia
Harris Mitchell Baker	Georgia
William Dalton Barton	Walker
Andrew Jackson Bethea	Marengo
George Wallace Brice	North Carolina
Henry Maddox Brittain	Randolph
William Wallace Caldwell	Lee
Royden Wendell Carter	Limestone
Phoebe Cary	Lee
Aldo Francis Antonio Castagnoli	Bibb

Walter Payne Christian	Shelby
William Thomas Clearman	Lamar
William Harvey Cogswell, Jr	South Carolina
Lloyd Denton Cole	Randolph
David Lee Cotton	Georgia
Eugene Cowart	Escambia
Francis Bernard Coyle	New York
Paul Mitchell Davenport	Georgia
Othmar Kendrick David	Georgia
Samuel Moore Dillard	Madison
Ernest Archibald Dixon	Mississippi
Robert Emmett Dixon	Sumter
Claude Everett Edmiston	Florida
Lemuel Alvin Edmonson	Morgan
Jesse Eugene Emmons	New Mexico
Thomas Melville Erickson	Mobile
Benjamin Ellsworth Evans	Lee
Lester Erastus Evans	Georgia
Calder Willingham Finney	Georgia
Henry Grady Floyd	Lee
Charles Walker Frederick	Marion
Thomas Hagan Frost	Limestone
Emory Elgin Fry	Texas
Oliver Ira Gaines	Jackson
Phillip Benjamin Goldstein	Jefferson
Henry Homer Gossett	Georgia
Young Charles Hall	Baldwin
Hugh Carey Hanlin	Colbert
Robert Franklin Harrison	Madison
Franklin Augustus Hart	Montgomery
Arthur Zellers Heard	Lee
Harvey Curtis Heath	Coffee
Henry Harmon Heine	Talladega
Alexander Stanton Hill	Jackson
Daniel Franklin Hixon	Bullock
Chalmers Duke Horne	Florida
Joel Hurt, Jr	Georgia
Thomas Clarence Izard	Limestone
Arlandus Leon Jerdan	Franklin
Taylor Goodwin Jones	Marengo
John Albert Key	Florida
Joseph Edwin Lacey	Jefferson
Edmund Clark Leach	Tallapoosa
Robert Curry Lett	Greene

Isaiah Daniel Lewis	Bibb
Victor Wallace Lewis	Bibb
Robert Hood Lister	Etowah
Oscar Emory Littleton	Montgomery
Basil Manley Lovelace	Escambia
Johnathan Bell Lovelace	Escambia
James Jackson Lovelace	Escambia
Jefferson McCord	Coosa
Samuel Lucas McDowell	Wilcox
Rupert Alonzo McGinty	Jefferson
James Alexander McLeod	Houston
William Albert McMurray	Franklin
Terry McCall McPherson	Lee
John Ephriam Mathews	Georgia
Thomas Rex Mathews	Talladega
Charles Benton Moore	Perry
Harry Lee Moore	Georgia
Judson Eckford Moses	Marion
Emery Tyler Motley	Randolph
Frederick Moss Nelson	Franklin
James Kirk Newell	Tallapoosa
Duncan Nolan	Jefferson
Oliver Clark Owsley	Elmore
John Burton Pennington	Lamar
E. R. Phillips, Jr	Dale
Frederick Eugene Pickett	Bullock
Marvin Pipkin	Florida
Benjamin Patrick Poyner, Jr	Dale
Carl Edward Pritchett	Clarke
Irvin Talton Quinn	Marion
Harry Henderson Rabb	Escambia
Ralph Waldo Riddle	Jefferson
Harry Crispe Sessions	Wilcox
Boyd Shaver	Montgomery
William Edward Shivers	Shelby
Allen Percy Smith	Walker
Henry Grady Smith	Perry
John Gordon Sparkes	Jefferson
Henry Turner Spence	Georgia
Ernest Henry Standifer	Tuscaloosa
Solomon Everett Stein	Limestone
George Vaugn Stelzenmuller	Baldwin
Peter Melville Stewart	Jefferson
Clifford Marvin Stodghill	Randolph
Dee Granville Sullins	Marion
Derwood Lee Taylor	Lee

Bronier Lastrappe Thibaut	Louisiana
John Penn Tomberlin	Florida
Charles Curry Vaughan, Jr	Lauderdale
Adiel Ernest Ware	Georgia
Claud Wright Watson	Wilcox
Wilton Wendell Webb	Lee
Thomas Garnet Wingo	Jefferson
James Harper Worrill	Georgia
Charles Porter Wright	Lee
Hugh Gardner Zeigler	Sumter

JUNIOR CLASS

Ernest Clifton Adkins	Jefferson
Odis Dennis Allbritten	Marshall
Charles Jefferson Allen	Lee
Porter Weakley Allen	Jefferson
William Edwin Arnold	Florida
Augustus Barnes	Lee
Andrew Hill Barnett	Bullock
Edwin Fry Barry	Texas
Cleburne Ammen Basore	Jefferson
James Edwin Bazemore	Coosa
Robert Fernand Angelo Benson	Mobile
John Goodman Bethea	Conecuh
Benjamin Paul Blasingame	Lee
Carolus Magnus Blumenfeldt	Mobile
Albert Edward Booth	Florida
Frank Ewell Boyd	Chambers
Rives Hood Boykin	Mobile
Hugh Marks Bray	Russell
Otto Brown	Choctaw
John Luther Bryan	Lee
Peter DeMarkus Burks, Jr	Georgia
James Reid Campbell, Jr	Macon
Fletcher Franklin Carter	Shelby
Henry Gray Carter	Georgia
Frank Gregory Charlton	St. Clair
William Taylor Cheney	Marengo
William Haywood Christopher	Florida
Eason Thweat Cook, Jr	Montgomery
Alexander Stephens Corgill	Marengo
Charles Hadley Cooper	Georgia
Marcus Williams Crenshaw	Limestone
Charles Washington Culpepper	Randolph
John Marvin Davis	Jefferson
Martin McClenon Davis	Georgia
Frank Richard Deakins	Tennessee

Daniel Stetson Denton	Georgia
Harry Price Dixey	Louisiana
John Clinton Donehoo	Blount
Margaret Louise Duggar	Lee
Francis Earl Dunlap	Shelby
Fletcher Moore Ellis	Bullock
Herbert Houston Farr	Jefferson
William Bernie Farrar	Marshall
Henry Roy Faucette	Bibb
Arthur Trezevant Feaster, Jr	Jefferson
William Westcott Fetner	Georgia
Francis Asberry Flowers	Houston
Enoch Dortch Fly	Jefferson
Arthur Foster	Cleburne
John Wilbur Freeman	Chambers
Edward Lawrence Gilder	Montgomery
Augustus Tompkins Graydon	South Carolina
Cecil Stewart Grimes	Georgia
Robert Lawrence Groover	Georgia
Edward Collier Hagan	Texas
Frederick Cecil Hallmark	Jefferson
Gustave Adolph Hanson	Florida
Joe John Haralson	Lee
Curtis Crawford Harper	Jefferson
Lewis Clement Harris	Wilcox
William Bowen Henderson	Montgomery
Robert Edward Herring	Tennessee
Howell Payne Hines	Chambers
George Washington Holley	Tuscaloosa
Charles Lewis Hollingsworth	Talladega
Lemuel Jasper Howell	Marion
Oliver Lynch Howell	Tennessee
William Howard Hudson	Clay
Andrew Hagan Jackson	South Carolina
Percy Lee Jones	Lauderdale
Henry Grady Kelley	Walker
Marvin Henry Killingsworth	Shelby
Richard Hallonquist LaRoche	Florida
John Wesley Lawler	Lee
Carlton Anderson Lee	Georgia
James C. Lee	Jefferson
John Rush Lester	Georgia
Lester Hickman Lewis	Bibb
Eugene Mason Lindsey	Georgia
William David Lockhart	Dallas

William Charles Louisell	Mobile
Joseph Herkimer McCombs	Lee
Gayle McFadden	Florida
Herbert Marshall Martin	Florida
Robert Holloway Martin	Escambia
Robert Morris Martin	Marion
Hugh Lester Mayers	Lamar
Manly Foster Meador	Marengo
Ivan Wilfred Miller	Walker
Paul Minnis	Mobile
Porter Mixon	Houston
Charles David Moon	Coosa
Lorenzo Daniel Morgan	Dallas
George Lewis Moulton	Mobile
Robert Walker Murray	Georgia
Roland Hall Neel	Georgia
Andrew Jackson Noble	Elmore
Charles Stott Noble	Calhoun
Reb Cleveland O'Briant	Lamar
John William Pace, Jr	Lee
Loomis Gay Pearson	Randolph
Millard Hosmer Pearson	Randolph
Donald Rant Pill	Walker
Lawrence Whetstone Rainey	Talladega
McClellan Ratchford	Chambers
Insco Elem Remington	Washington
John Enoch Riley	Jefferson
George Seaman Riser	Jefferson
Arthur Bordears Robertson	Barbour
Hamilton Manoah Robertson	Tennessee
Thomas Orlando Robertson	Georgia
Henry William Robinson	Conecuh
Frank Park Samford	Montgomery
Anthony Sayre	Montgomery
Walter Monroe Sellers	Pike
Otto Karthaus Seyforth	Madison
Cleveland Gillespie Sharp	Morgan
Guy Maxwell Spearman	Walker
Thomas James Stephenson	Dallas
Chester A. Stewart	Fayette
Harry Humphrey Stirling	Jefferson
Charter Howard Taylor	Autauga
Annie Elizabeth Terrell	Lee
Arthur Joel Thigpen	Lee

James Henry Thigpen	Lowndes
William Burley Tisdale	Florida
Wendell Holmes Tisdale	Florida
Henry Asa Vaughan	Marengo
Madison Arnold Veazey	Chambers
George Sidney Waits	Covington
Claude Hunter Wallace	Jefferson
James Sebastian Watts	Walker
James Arrington Webb	Jefferson
Frederick William Wendt	Montgomery
Joseph Madison White	Montgomery
William Lemuel White	Marion
Bryan Watkins Whitfield	Marengo
Robert Sidney Whitfield	Hale
Edgar Eldred Williams	Elmore
John Winfield Williams, Jr.	Lee
Frank Whitaker Wilmore	Lee
Walter Herren Wilson	Lee
Frank Axson Winn, Jr	Florida

SOPHOMORE CLASS

John Lewis Abbot	Virginia
William Richardson Abbot	Virginia
Robert Lee Adams	Lee
Edward Amende Allen	Jefferson
Glenn Andrews, Jr	Montgomery
William Emmet Ayres	Lamar
Robert Emerson Bailey	Calhoun
Hammond Dudley Baker	Lee
Joseph Marion Beutell	Georgia
Albert Bonds	Greene
James Terrill Brazelton	Jefferson
Samuel Bragg Brewer	Tallapoosa
Andrew Jackson Brooks, Jr	Lowndes
William Hayden Brooks	Jefferson
James Rosby Brown	Florida
Pressly Bryant	Wilcox
Elwyn Allen Cary	Lee
Carlos Casanovas	Cuba
Juan Rafael Casanovas	Cuba
Charles Walter Castleman	Talladega
Morris Henry Crane	Jefferson
Joseph Alpha Cullars	Lee
William Velpeau Curtis	Bibb
William Theodore Davidson	Georgia

Robert Dennis	Pike
Edward Hale Dickenson	Florida
Clyde Augustus Donehoo	Blount
Edgar Elisha Downing	Escambia
Berry Owen Driver, Jr	Randolph
James Archibald Duncan, Jr	Georgia
Louis Frazier Ebersole	Jefferson
Mortimer Alfred Ehrlich	Georgia
Arturo Elizondo	Mexico
Otis Douglass Ellard	Jefferson
William Robert Ellett	Madison
Hillary Herbert Elliott	Shelby
Paul Edward Engle	Jefferson
Julian Horivitz Erlick	Jefferson
Charles Maynard Farrow	Tallapoosa
Clem Cleveland Faulk	Geneva
Julius Albert Fincken	South Carolina
Rex Finley	Morgan
Joseph Holmes Flaig	Texas
Odie Clyde Gaines	Autauga
Jesus Galan	Mexico
Davis Adolpus Gammage	Barbour
Condie Pugh Gaston	Wilcox
Daniel DeKalb Gibson	Clay
Charles Hereford Gilmour	Jefferson
Hunter Grant	Barbour
John Louis Green	Dallas
Rinaldo McKeene Greene, Jr	Lee
Gabriel Marcus Gup	Mobile
Philip Heyman Hagedorn, Jr	Georgia
Arthur Brooks Hale	Jefferson
Arthur Lee Hall	Florida
Wilbur Eugene Hall	Morgan
Alfred Lee Harrell, Jr	Chambers
Festus Urban Harris	Jefferson
Cosette Woodley Harrison	Montgomery
Crawford Buchanan Hawkins	Mississippi
Frederick Hollis Haynie	Lee
Emmett Thomas Hill	Lamar
Frederick Hardy Holcomb	Shelby
John Littleton Howard	Jefferson
Robert Maull Howe	Lee
Albert Gorman Hudson	Shelby
John Franklin Hudson	Georgia

Robert Marvin Hudson	Clay
Thaddeus Henry Ingram, Jr	Lee
Clarke Upham Irvine	Mobile
Leroy King Jones, Jr	Marengo
Roy Ernest Jones	Montgomery
Thomas McDonald Jones	Coosa
John Moses Keith	Lee
William Lewis Kellum	Shelby
Harry Center Kendall, Jr	Georgia
Roscoe Dean Kershaw	Morgan
Lee Eugene Kimball	Mobile
William Richard King	Wilcox
Henderson Randolph Kinsey	Florida
Robert William Lawton	Florida
Edward Magruder Leath	Jefferson
Mitchell Porter Ledbetter	Jefferson
Wilbur Fisk Littleton	Montgomery
Thomas Bayne Locke	Hale
George Vernon Long	Jefferson
Claude Mortimer McCall	Escambia
Jesse Eugene McCoy	Escambia
Russell Wilbur McDuffie	Geneva
John Colin McLean	Florida
Ellison Smyth McKissick	South Carolina
William Duncan Maclay	Mississippi
Homer Angelo MacRae	Georgia
Alexander Leonard Martin	Dale
Joel Philip Melvin	Tennessee
James Foy Middlebrooks	Barbour
Robert Forney Middleton	Etowah
Leslie Albert Miller	Walker
John William Moore	Elmore
Charles Fletcher Moreland	Texas
Harrison Palmer Mullin	Lee
James William Mullin	Georgia
Olin Findley Nelson	Walker
John Sutherlin Noble, Jr.	Montgomery
James McCoy Oliver	Tallapoosa
John Boyd Overstreet	Kentucky
Edgar Eugene Owen	Chambers
George Washington Owen	Florida
Lex Sneed Owens	Pike
George A. Patterson	Mobile
John Heard Patterson	Elmore
Leonard Graham Pearce	Autauga

Jack Noble Peebles	Montgomery
Pierce R. V. Pettis	Clark
Francis DeKalb Pierce	Barbour
Myrt Warren Pouncey	Escambia
Nelson Wilmer Proctor, Jr	Jefferson
Davis Warren Puckett	Florida
Willis Kelly Ransom	Jefferson
Charles Hinton Remington	Georgia
William Gregg Robins	Wilcox
William Glenn Rushing	Escambia
Frederick Hart Savage, Jr	Wilcox
John Wendolin Seibold	Marshall
Albert Vertner Sevier	Louisiana
James Virgil Sills	Wilcox
John Asa Simms	Sumter
William Howard Slaughter	Wilcox
C. H. Smith	Florida
Fenton Reid Smith	Marengo
Thomas Chilton Smith	Jefferson
William Jackson Smith	Montgomery
Philip Nicholas Sowell	Escambia
Simpson Steven Sparkman	Florida
Joseph Wheeler Starkey	Colbert
Frances Victoria Steele	Lee
Charles Jefferson Stewart	Bibb
Henry Lee Stewart	Jefferson
John Dodson Summers	Lee
Lonnie Polk Sweatt, Jr	Jefferson
Hassie Earl Terrell	Lee
Benjamin Franklin Thomas	Lee
Furman Leffell Tucker	South Carolina
Arthur Pearce Turner	Colbert
Homer Herd Turner	Colbert
Samuel Hall Turner	Wilcox
Edward Leroy Tuttle	Houston
Roy Abraham Underwood	Franklin
Ira Davis Vail	Greene
Albert Weaver	Escambia
James Herbert White	Tallapoosa
Laurence White	Hale
Robertson Wilkins	Georgia
Samuel Aaron Burr Wilkinson	Geneva
Milton LeGrand Wood, Jr	Montgomery
Gautier Conde Yancey	Macon
Oliver Eubert Young	Choctaw

FRESHMAN CLASS

Kyle Bonar Alsobrook	Chambers
Hayne Coker Appleton	DeKalb
John Henry Arnold	Etowah
John Dunklin Ashcraft	Lauderdale
William Elmer Bachelor	Elmore
Richmond Young Bailey	Chambers
Blanchard Battle	Georgia
Carl Lee Beall	Crenshaw
George Woodbury Farrar Bibb	Texas
Jonathan Taylor Bickley	Sumter
Wiley McGehee Billing	Montgomery
Thomas Massie Boyd	Texas
Charles Russell Bricken, Jr	Crenshaw
Max Garrett Brittain	Georgia
Thomas Emory Brooks	Jefferson
Paul Jackson Bryars	Baldwin
Robert Emmett Cammack	Clarke
Edmund Brown Campbell	Tennessee
Belser Ray Carr	Macon
Wilmer Huxley Carter	Florida
General Castillow	Monroe
Clete Walton Clark	Conecuh
Frank Cook	Lee
George Roy Corcoran	Russell
Paul Culpepper	Jefferson
William Joseph Dorroh	Lamar
Vernon James Douglass	Jefferson
Ambrose Camp Duggar	Lee
Thomas Edmund Duncan	Lee
Perry Jackson Edwards	Morgan
Cleveland Eros	Calhoun
Linwood Hugh Flowers	Henry
Seth Jordan Floyd	Lee
Roland Macon Fricke	Marshall
Howard Grattan Gamble	Florida
Edwin Perry Grant	Barbour
Willice Lovert Grubbs	Morgan
Reynolds Jennings Hamilton	Greene
Arnold Edmund Hayes	Jefferson
Elza Bland Holloway	Autauga
Montgomery Lamar Howe	Lee
Ballard Hudson	Georgia
Andrew Orestes Jackson	Pike

Henry Thomas Jones	Monroe
Henry Lord Page King	Georgia
Levi Alvan Knapp	Lee
William Henry Langhorne	Perry
Everett Lay	Etowah
Glen Liddell	Wilcox
John McCrory	Butler
Joseph T. McLean	Florida
Charles McLendon	Georgia
Clifford Brasswell McManus	Georgia
Albert Young Masters	St. Clair
Roy William Mathison	Jefferson
V. F. Mitchell	Tuscaloosa
Carl Dent Montgomery	West Virginia
Frank Calhoun Moore	Kentucky
Sarah Evelyn Moore	Lee
Cyrus Edson Newman	Coosa
Ed Cranmer Newton	North Carolina
William Wyman Owens	Pike
Lauren Enoch Owings	Pickens
Lucius Rieves Owsley	Elmore
Albert Mason Peck	Morgan
Henry William Perry, Jr.	Jefferson
Joseph Bancroft Perry	Tennessee
James Goggins Peterson	Coosa
James Thomas Roberts	Marshall
Walter Stancel Robertson	Tennessee
Atlee Sample	Morgan
Frederick Gordon Sholes	Jefferson
Edward Ward Smith	Lee
Frank Davenport Stapleton	Georgia
George Malcolm Steed	Wilcox
George Henry Stewart	Coosa
Alfred Haskell Taber	Montgomery
Edwin Price Taylor	Mississippi
Francis Marion Taylor	Lee
George Ellis Taylor	Jefferson
Samuel Fuller Teague	Jefferson
David Lee Timberlake	Jackson
Alonzo Fears Truett	Georgia
Harry Emerson Waldrop	Jefferson
Nealy Andrew Waldrop	Jefferson

Ola Loyd Waller	Georgia
Dewitt Talmage Ware	Randolph
George Lawrence Washington	Cuba
Leonard Lyon Watkins	Choctaw
Thomas Whitehead West	Georgia
Albert Barron Whatley	Lee
Thomas Jefferson Whatley, Jr.	Houston
Ralph Lankford White	DeKalb
Fletcher Beck Williams	Sumter
Gilmore Clark Williams	Cullman
James David Williford	Lee
Robert Fleming Williford	Lee
Hugh McCalla Wilson, Jr.	Lee
Samuel Ander Wingard	Montgomery
John Garland Woodall	Jackson
Andrew Jackson Wynne	Marengo

SPECIAL AND IRREGULAR STUDENTS

Benjamin Hill Andrews	Chambers
Grover Cleveland Arant	Elmore
Frederick Aubrey	Randolph
Roger Williams Autry	Texas
Theodore Russell Benning	Georgia
Russell Lee Beutell	Georgia
Paul Rubens Bidez	Georgia
Edwin Tayler Bowen	Georgia
Oscar Boza	Peru
Hervey Abner Brown	Montgomery
William Ausphera Bryant	Baldwin
Clarence Grove Carr	Lowndes
Elmer Rice Chambliss	Autauga
Arthur Lyons Crowe	Georgia
Leon A. DesPland, Jr.	Florida
Walter Herman Droll	Jefferson
Frances Alexander Duncan	Lee
Salvador Falla, Jr.	Guatemala
Halsey Louis Ford	Jefferson
Joseph Michael Franklin	Jefferson
George David Fulmer	Mississippi
William Matthews Garrett	Lowndes
Raymond Franklin Gibson	Georgia
John Sharp Gillespie	Jefferson
Frederick Crisp Hale	Calhoun
Jefferson Merritt Hamilton	Butler

Shirley Winfred Harris	Jefferson
James Hayes	Bullock
John Jesse Heard	Florida
Lawrence James Heatherly	Lauderdale
William Theodore Heidt	Jefferson
Fenner Burwell Hill, Jr.	Jefferson
Oliver Howard Holmes	Jefferson
Stephen Proctor Huger	Calhoun
Walter Lee James	Bibb
Daniel Thomas Jones	Jefferson
Greene Henry Jones	Tallapoosa
Joseph Leon Kennedy	Walker
Benjamin Joseph Lamb	Greene
Robert Morgan Lambert	Monroe
William Henry Lanford, Jr.	Lee
William Spears Latimore	Tennessee
Frank Wayne Lockwood	Montgomery
J. H. McCary, Jr.	Jefferson
John George McClellan	Lee
Stewart William McCombs	Lee
Carl Graham McFarlin	Jefferson
Samuel Marshall Major	South Carolina
Robert Caswell Maples	Jackson
Albert Levi Merrifield	Lee
David Hammond Middleton	Lowndes
Alexander Edwin Morrow	Tuscaloosa
Leonidas Poyntz Munger	Jefferson
Dodd Oliphant	Georgia
Pope Oliphant	Georgia
William Ware Palmer	Lee
Abner Perrin	Dallas
Powell Miree Pierson	Perry
Thomas Christopher Rives	Montgomery
Frances Susan Rutland	Chambers
Thomas Clairborne Schley	Mobile
Winfield Woolf Skinner	Lee
Clarence Dudley Smalling	Georgia
Elbert Smith	Conecuh
Lewis Edmond Sorrell	Chilton
William Audley Taber	Montgomery
Robert Middleton Tate	Jefferson
Arthur Ralph Taylor	Mississippi
James William Thompson	Jefferson
Gordon Clopton Ussery	Randolph

George Rives Vaughan, Jr.	Mobile
Sidney Nelson Wellborn	Bullock
Robert Luther Wood, Jr.	Lowndes
Michael Zimmerman	Jefferson

DEPARTMENT OF PHARMACY

FOUR-YEAR COURSE

GRADUATES

Milner Hubbard Eskew	Dallas
Jemison Mims Moseley	Dallas

SENIOR CLASS

Lloyd Denton Cole	Randolph
Phillip Benjamin Goldstein	Jefferson
Terry McCall McPherson	Lee
Emery Tyler Motley	Randolph
James Kirk Newell	Tallapoosa
E. R. Phillips, Jr.	Dale
Clifford Marvin Stoghill	Randolph

JUNIOR CLASS

Henry Roy Faucette	Bibb
John Wilbur Freeman	Chambers
Robert Walker Murray	Georgia
Charter Howard Taylor	Autauga
Arthur Joel Thigpen	Lee

TWO-YEAR COURSE

SECOND YEAR

Samuel Faucett Anders	Tuscaloosa
Massey Palmer Bedsole	Clarke
John Mozelle Blanton	Florida
Howard Milton Boyd	Lee
Elmer Bussey	Morgan
Asa North Duncan	Colbert
William James Galloway	Colbert
Julius Lamar Greene	Macon
Charles Francis Grove	Mobile
John Henry Hanson	Tallapoosa
Haney Lee Jackson	Marengo
John Henry Josey	Covington
Jerome Tracy Keeling	Etowah

Henry Lansberger, Jr.	Jefferson
John Macon Lawrence	Bullock
Frank Tyre Manley	Randolph
Paul Molyneux	Baldwin
William Gray Moore	Lee
Hillary Herbert Moorer	Conecuh
James Harvey Stacey	Monroe
Edward Boyd Sutton	Georgia
John Gilbert Watkins	Fayette
Hiram White	Baldwin
Samuel Landrum Wood	Henry

FIRST YEAR

Henry Evan Benbow	Crenshaw
Charles Wilbur Breedlove	Macon
Samuel Davis Buck	Marengo
Carl Busey	Monroe
Ely Eldrid Caldwell	Elmore
Thomas Roscoe Drisdale	Colbert
David Smith Greer	Perry
John Uhel Grimsley	Escambia
Clarence Bonner Hines	Wilcox
Houston George Holland	Crenshaw
Otis S. Hooper	Cleburne
James Clinton Kent	Elmore
John Lauderdale	Coosa
Hobart McAuley	Georgia
Virgil Oden McInish	Coosa
William Frederick Moreman	Georgia
Benigno Pereda	Cuba
Ernest Clark Pope	Bibb
James Colbert Price, Jr.	Mississippi
Joseph Daniel Richardson	Elmore
Hoke Smith Riddle	Georgia
Ethridge Bryant Thompson	Clay
James Foy Walton	Chambers
Walter Jackson Watkins	Coosa
Loather Guy Webb	Calhoun
Ira C. Williams	Florida

COLLEGE OF VETERINARY MEDICINE AND SURGERY

GRADUATES

Marion Elerson Meadows	Lee
Claud William Marceline Ressijac	Mobile

THIRD YEAR

Lewis Edgar Beckham	Hale
Hancel William Caldwell	Lee
Daniel Cook	Lee
McElroy Dean	Tallapoosa
John Isaac Handley	Clay
Samuel D. Haynie	Lee
Leon Ryan Kendrick	Dallas
John Howard Leonard	Tennessee
John Perry Major	South Carolina
Edgar Delon Miley	Dallas
Guy Maxey Parrish	Lee
William Waller Parrish	Lee
Lamar Fontaine Pritchett	Clarke
Samuel Watson Sullivan	Lowndes

SECOND YEAR

Roe Ballou	Marengo
John Sidney Cook	Choctaw
Monroe Sublett Esslinger	Madison
Cage Head	Shelby
William Ernest Hollingsworth	Talladega
James Karl Jones	Wilcox
Richard Irvin Kearley	Monroe
Walter Douglass McCormack	Jefferson
Arthur Storey Makin	Jefferson
Emanuel Brandon Mount	Montgomery
James Hubert Page	Geneva
Joseph Steven Powell	Choctaw
Edward Genearo Queral	Cuba
Walter Bivins Smith	Calhoun
James Daniel Wilbanks	Tallapoosa

FIRST YEAR

Godfrey Charles Bevan	Jefferson
Leon J. Bonner	Clay
William Benjamin Calhoun	Georgia
Sanford Gollie Carter, Jr.	Randolph
Thompson DeLashmet	Mississippi
Oconah Dyson	Chambers
Isaac Grady Gauntt	Tallapoosa
Travis Branch Gissendanner	Dale
Leon Charles Gruver	Montgomery
Thomas Blake Howle	Calhoun

George Douglass Ingram	Lee
Benjamin Franklin Jones	Wilcox
Joseph Elmore McAdory	Jefferson
Julian Curtis Meadows	Lee
Lawrence Davis Mitchell	Montgomery
Herbert Byron Nixon	Calhoun
Leonidas Keller Ogletree	Talladega
John Bruner Phillips, Jr.	Choctaw
Irby Pollard	Crenshaw
William Simpson Seibold	Marshall
Roy Felton South	Blount
Frederick Steele	Lee
Charles Thigpen	Lowndes
Marvin William Williams	Lee
Vincent Brown Wright	South Carolina

TWO-YEAR COURSE IN MECHANIC ARTS

William Robert Abercrombie	Jefferson
Harry Elliott Allen	Montgomery
John Robert Argo	Coosa
Ernest William Bryan	Lee
John Allen Briethaupt	Wilcox
James William Burgin	Jefferson
George Washington LaFayette Carr	Lowndes
Frank Pratt Crowe	Shelby
Thomas Judson Day	Dallas
Benjamin Harrison Dodd	Walker
David Merrick Dowdell	Lee
William Edward Evans	Clarke
Edward Samuel Gatchell	Lee
Oscar Flint Goggans	Marion
James Edwin Hickey	Montgomery
Andrew John Houser, Jr.	Georgia
Duncan Lawson Houser	Calhoun
Joseph William Hudson	Montgomery
Boykin Jones Hyer	Florida
William Charles Jackson	Monroe
Thomas Joseph Kelly, Jr.	Mobile
Joseph Ernest Kendrick	Dallas
John Edward Key	Chambers
Norman Allen Lewis	Marengo
Andrew Dowdell Lipscomb	Lee
Orris Vann Love	Jefferson
Thomas Monroe Luke	Sumter

Griel Patrick McPherson	Lowndes
Edmund Mitchell Manning	Coosa
Neil Carpenter Miller	Montgomery
William Oliver Parker	Jefferson
Russell Ward Phillips	Sumter
Eugene Wilson Powell	Jefferson
Everett Beck Pritchett	Wilcox
John Marvin Reynolds	Butler
Walter Hugh Roberts	Baldwin
Oliver Gordon Robinson	Jefferson
Charles Roycroft	Mobile
Clarence Herbert Smith	Calhoun
James Newton Smith	Bibb
William Marcus Thigpen	Russell
Russell Fleming Walthour, Jr.	Lee
Clark Hudson Watkins	Georgia
James Wallace Whatley	Lee
Walter Alexander Whatley	Lee
Clinton Jones Williams	Montgomery

TWO-YEAR COURSE IN AGRICULTURE

Jacob Henry Abraham	Montgomery
George Lloyd Breeden, Jr.	Dallas
Edwin Early Clements	Lee
Leonard Martin Collins	Hale
Farris Kennedy Cook	Jefferson
James Haywood Craighead	Perry
Julian Sinclair DeGaris	St. Clair
Walter Scott Desprez	Colbert
Render Ware Dowdell	Chambers
Robert DuBose, Jr.	Lawrence
Harvey Kyle Elliott	Etowah
John Cee Freeland, Jr.	Louisiana
Franklin Lloyd Gaddis	Elmore
Gustave Donet Gilmer	Montgomery
Elhanon Winchester Hall	Bullock
Clem Henderson	Coffee
William Aurelius Hewes	Jefferson
Frank James Inge, Jr.	Greene
Robert Payne Keyes	Limestone
Thomas D. McGough, Jr.	Montgomery
John Bryant Middleton	Jackson
Rush Hicks Pearson	Montgomery
George Arthur Pfaffman	Indiana

Theodore Henry Rabe, Jr.	Jefferson
Claude Roberson	Lawrence
Olen Davis Roberson	Lawrence
Frederick Gordon Shinn	Talladega
Douglas Snow	Clark
Louis Edwin Stotlar	Illinois
John Henry Thigpen, Jr.	Russell
Guy Mastin Turner	Washington
Paul Wright	Lauderdale

SUMMARY

Graduate Students	21
Senior Class	114
Junior Class	143
Sophomore Class	158
Freshman Class	101
Special and Irregular Students	74
Pharmacy	64
Veterinary Medicine	56
Mechanic Arts	46
Two-Year Course in Agriculture	32
	809
Deduct for names counted twice	14
Total	795

NUMER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	550	Geology	85
History	364	Civil Engineering	36
French	53	Structural Design	36
German	74	Electrical Engineering	95
Latin	91	Mechanical Engineering	108
Mental Science	11	Mining Engineering	12
Political Economy	93	Architecture	38
Mathematics	510	Machine Design	68
Chemical Laboratory	187	Drawing	258
Chemistry	475	Descriptive Geometry	97
Agriculture	281	Mechanic Arts	338
Animal Industry	334	Mineralogy	13
Physics	450	Physiology	139
Botany	169	Veterinary Science	84
Entomology	43	Pharmacy	68
Horticulture	90	Veterinary Medicine	56
Forestry	41	Military Department	688
Landscape Gardening	9	Surveying	139

RESIDENCE BY STATES

Alabama	632
Georgia	68
Florida	34
South Carolina	10
Tennessee	10
Mississippi	8
Texas	8
Louisiana	4
North Carolina	2
Kentucky	2
Virginia	2
New Mexico	1
Michigan	1
New York	1
Indiana	1
Illinois	1
West Virginia	1
Cuba	5
Mexico	2
Guatemala	1
Peru	1

Langdon Hall

MILITARY ORGANIZATION

SESSION 1912–'13

President,
CHARLES C. THACH.

Commandant,
COL. BENJAMIN S. PATRICK.

Surgeon,
J. H. DRAKE.

Bandmaster,
MAJOR A. L. THOMAS.

Regimental Staff.

Cadet Captain C. E. Edmiston, Commissary.
Cadet Captain G. V. Stelzenmuller, Quartermaster.
Cadet Captain P. M. Davenport, Adjutant.

Regimental Non-Commissioned Staff.

Cadet Sergeant H. P. Dixey, Sergeant Major.
Cadet Sergeant W. H. Tisdale, Quartermaster Sergeant.
Cadet Sergeant R. L. Groover, Color Sergeant.
Cadet Sergeant J. M. Davis, Drum Major.

First Battalion.

Cadet Major, H. C. Hanlin.

Cadet Lieutenant E. A. Dixon, Adjutant.
Cadet Lieutenant V. W. Lewis, Quartermaster and Commissary.
Cadet Sergeant W. H. Wilson, Sergeant Major.

Cadet Captains.

Company A.	Company B.	Company C.	Company D.
J. P. Tomberlin,	H. C. Sessions,	D. L. Taylor.	H. H. Heine.
	Cadet First Lieutenants.		
E. E. Fry,	R. C. Lett,	C. W. Finney,	H. H. Gossett,
C. D. Horne,	J. McCord,	R. W. Carter,	I. T. Quinn,
	Cadet Second Lieutenants.		
—	J. A. Key,	J. B. Lovelace,	J. E. Moses.
	Cadet First Sergeants.		
M. F. Meador,	W. B. Tisdale,	M. W. Crenshaw,	R. E. Herring.
	Cadet Sergeants.		
E. E. Williams,	F. P. Samford,	P. Minnis,	A. T. Graydon,
F. C. Hallmark,	O. K. Seyforth,	E. D. Fly,	L. H. Lewis,
F. W. Wilmore,	W. T. Cheney,	R. H. Boykin,	C. L. Hollingsworth
R. H. Neel,		W. B. Henderson,	
C. H. Cooper,			
	Cadet Corporals.		
E. A. Allen,	J. M. Oliver,	C. B. Hawkins,	D. D. Gibson,
A. Bonds,	J. W. Starkey,	C. M. Farrow,	A. B. Hale,
R. E. Bailey,	C. A. Donehoo,	W. T. Davidson,	J. P. Melvin,
R. V. Pettis,	C. M. McCall,	C. J. Stewart,	W. R. Ellett,
H. R. Kinsey,	C. P. Gaston,	G. C. Yancey,	W. E. Ayres,
	J. A. Cullars,		

Second Battalion.

Cadet Major, R. A. McGinty.

Cadet Lieutenant H. G. Smith, Adjutant.

Cadet Lieutenant I. D. Lewis, Quartermaster and Commissary.

Cadet Sergeant C. S. Noble, Sergeant Major.

Company E.	Company F.	Company G.	Company H.
Cadet Captains.			
C. W. Watson,	J. E. Lacey,	B. Shaver,	H. G. Zeigler.
Cadet First Lieutenants.			
S. L. McDowell,	H. T. Spence,	H. G. Floyd,	M. Pipkin,
R. F. Harrison,	W. E. Shivers,	H. M. Baker,	W. W. Caldwell.
Cadet Second Lieutenants.			
E. C. Leach,	J. G. Sparkes,	R. W. Riddle,	F. B. Coyle.
Cadet First Sergeants.			
H. R. Faucett,	M. H. Killingsworth,	W. E. Arnold,	J. C. Lee.
Cadet Sergeants.			
A. J. Noble.	E. L. Gilder,	E. F. Barry,	G. A. Hanson,
P. Mixon,	E. M. Lindsey,	J. R. Lester,	F. E. Boyd,
J. W. Williams,	J. M. White,	A. Sayre,	P. L. Jones,
M. Ratchford,		H. A. Vaughan,	G. S. Waits.
Cadet Corporals.			
B. F. Thomas,	J. A. Simms,	J. H. White,	C. F. Moreland,
S. S. Sparkman,	W. F. Littleton,	N. W. Proctor,	C. U. Irvine,
E. T. Hill,	T. M. Jones,	C. H. Gilmour,	M. L. Wood,
B. O. Driver, Jr.,	A. L. Harrell,	F. L. Tucker,	H. H. Turner,
J. A. Duncan,	L. P. Sweatt,	A. P. Turner,	J. M. Beutell,
M. P. Ledbetter,	F. H. Holcomb,	E. L. Tuttle,	J. L. Howard.
		A. L. Martin,	

THE CADET BAND.

Session 1912-1913.

A. L. THOMAS, Bandmaster.

P. R. BIDEZ, Chief Musician. S. E. STEIN, Principal Musician.

Honorary Members.

C. P. Wright, J. B. Steadham.

Military Officers.

T. H. Frost	Cadet Lieutenant
H. M. Martin	Cadet Sergeant
J. M. Davis	Cadet Sergeant and Drum Major
J. J. Haralson	Cadet Sergeant
W. E. Hall	Cadet Corpora

Musicians.

T. H. Frost, Solo Cornet,
C. D. Moon, Solo Cornet,
W. E. Hall, First Cornet,
F. H. Haynie, First Cornet,
F. Aubrey, Second Cornet.

P. R. Bidez, Solo Clarinet,
B. P. Blasingame, First Clarinet,
J. J. Haralson, Second Clarinet,
H. M. Martin, Piccolo.

S. E. Stein, Euphonium,
F. E. Dunlap, Trombone,
A. J. Bethea, Tenor Saxophone,
R. D. Kershaw, Tuba.

C. P. Wright, Alto Saxophone,
D. A. Gammage, First Alto,
M. M. Davis, Second Alto,
A. E. Booth, Third Alto.

J. B Steadham, Snare Drum.

B. Hudson, Bass Drum.

Bugle Corps.

R. H. NEEL, Chief Trumpeter.

W. H. Christopher,
J. L. Howard,
G. V. Long,

G. L. Moulton,
G. L. Washington.

Cadets of the graduating class who were reported to the Adjutant-General, U. S. Army, for publication in the "Official Army Register" as having ranked highest in the Military Department:

1889
A. St. C. Dunstan,
B. H. Crenshaw,
A. J. Burr.

1890
F. D. Milstead,
J. W. Bivins,
G. W. Emory.

1891
L. E. Baker,
C. C. Johnson,
F. J. Bivins.

1892
H. F. Dobbin,
A. L. Jones,
C. L. Brown.

1893
Joel Dumas,
C. H. Smith,
J. F. Webb.

1894
C. S. Andrews,
P. P. McKeown,
R. L. Dorsey.

1895
S. L. Coleman,
H. H. Smith,
L. B. Gammon.

1896
A. L. Alexander,
W. L. Fleming,
W. M. Williams.

1897
P. G. Clark,
G. M. Holley,
G. N. Mitcham.

1898
A. H. Clark,
A. McB. Ransom,
John Haralson.

1899
I. F. McDonnell,
A. H. Feagin.
T. W. Wert.

1900
E. M. Mason,
H. P. Powell,
C. W. Nixon.

1901
A. F. Jackson,
J. D. Foy,
P. S. Haley.

1902
W. D. Willis,
J. E. D. Yonge,
J. B. Garber.

1903
H. E. Davis,
H. M. Yonge,
T. J. Dowdell.

1904
J. McDuffie,
B. L. Shi,
Geo. Dunglinson, Jr.

1905
R. P. Boyd,
R. M. McCulloh, Jr.
J. H. Paterson.

1906
W. H. Foy,
F. H. Mohns,
M. A. Frazer.

1907
N. B. McLeod,
W. L. Perdue,
G. F. Lipscomb.

1908
S. A. Ellsberry,
C. M. Howard,
R. H. Liddell.

1909
J. W. Powell,
S. H. Richardson,
T. Beasley.

1910
D. M. Clements,
C. C. Yonge,
J. M. Spearman.

1911
J. E. Davis,
J. J. Cater,
G. Lothrop.

1912
S. R. Cruse,
C. C. Thach, Jr.
F. L. Jenkins.

REQUIREMENTS FOR ADMISSION

All applicants for admission must present testimonials of good moral character, and those who come from other colleges must bring certificates of honorable discharge or furnish other testimonials of good moral character.

Students upon their arrival in Auburn should report promptly to the President. Candidates for admission are urged to be present on the opening day of the session. Admission at a later day is permitted, but is attended with greater or less inconvenience.

Entrance examinations will begin on Monday, September 8th. These examinations will be required of all students entering college for the first time, except those who bring certificates from accredited high schools or preparatory schools or from reputable colleges or universities.

ADMISSION TO THE FRESHMAN CLASS

To enter the freshman class the applicant must be not less than fifteen years of age.

For unconditional admission to any bachelor's course, or to the Veterinary College, a student will be required to present twelve entrance units, or the equivalent of three high school years.

Students who wish to enter the regular courses and are deficient in entrance requirements may enter and be classified as conditioned students, provided their deficiencies do not exceed three units.

For entrance to any of the special courses that do not lead to degrees, applicants must give evidence of satisfactory preparation for pursuing the work as outlined in the catalogue.

Of the twelve units required for admission in full standing to the freshman class, seven are prescribed as follows:

In Mathematics	3 units
In English	2½ units
In History	1½ units
Total prescribed	7 units

ENTRANCE SUBJECTS

Credit for admission will be given for any high school subject properly taught.

The principal subjects in which units may be offered for entrance are as follows:

Algebra	1½ units
Advanced Arithmetic	½ unit
Plane Geometry	1 unit
Solid Geometry	½ unit
Trigonometry	½ unit
High School Grammar	½ unit
Rhetoric and Composition	1½ units
Literature	1½ units
Advanced U.S. History	1 unit
Ancient History	1 unit
Mediaeval and Modern History	1 unit
English History	1 unit
Pedagogy	½ unit
Psychology	½ unit
French	1 to 2 units
German	1 to 2 units
Spanish	1 to 2 units
Latin Grammar	1 unit
Cæsar	1 unit
Cicero	1 unit
Virgil	1 unit
Greek	1 to 2 units
Commercial Geography	½ unit
Physical Geography	1 unit
Agriculture	½ to 2 units
Zoology	½ to 1 unit
Physiology	½ to 1 unit
Biology	½ to 1 unit
Physics	½ to 1 unit
Chemistry	½ to 2 units
Botany	½ to 1 unit
Civil Government	½ to 1 unit
Shop Work	½ to 4 units
Mechanical Drawing	½ to 2 units
Freehand Drawing	½ to 1 unit
Music	½ to 3 units
Bookkeeping	½ to 1 unit
Stenography and Typewriting	½ to 1 unit
Domestic Science	½ to 2 units

SPECIAL OR IRREGULAR STUDENTS

Those students who are not able to meet the regular entrance requirements may be admitted to special courses in agriculture, architecture, engineering, chemistry, pharmacy, etc., and will be classified as special or irregular students, provided they are seventeen years of age and are prepared to do satisfactory work in the subjects which they desire to take.

UNIT DEFINED

A unit is defined as a high school or preparatory course of five periods of forty or forty-five minutes each weekly, throughout the academic year of nine months. In science courses, two laboratory periods are counted as the equivalent of one recitation period. Credits of less than one unit may be granted for courses that do not run full time.

ENTRANCE SUBJECTS WITH DEFINITIONS OF REQUIREMENTS.

MATHEMATICS.

1.	Advanced Arithmetic Equivalent of courses offered in the accredited secondary schools of Alabama.	½ unit
2.	(a) Algebra to Quadratics	1 unit
	(a) Quadratics, binomial theorem, progressions, etc. (equivalent of Wentworth's *Elementary Algebra*)	½ unit
3.	Plane Geometry	1 unit
4.	Solid Geometry	½ unit
5.	Trigonometry	½ unit

ENGLISH

1.	High Scool Grammar	½ unit
2.	Composition and Rhetoric	1½ units
3.	Literature	1½ units

Below will be found two lists of books on which entrance requirements in English for 1913–14 are based, one for careful study and practice in class, the other for general reading, largely out of class. Those included in the list for careful study, the student will be expected to know pretty thoroughly. This part of the examination will be upon subject matter, literary form, and logical structure; and, in addition, the candidate will be required to answer questions involving a fair knowledge of the leading facts in those periods of English literature to which the prescribed work belongs. Those works in the list for reading and practice, the student will not be expected to know minutely, but to have a general knowledge of their subject matter and the lives of their authors. The main object in this part of the examination is to test the candidate's ability to use good English.

1. For study and practice:

Shakespeare's *Macbeth*; Milton's *Lycidas, Comus, L'Allegro* and *Il Penseroso*; Burke's *Speech on Conciliation with America* or Washington's *Farewell Address* and Webster's *First Bunker Hill Oration*; Macaulay's *Life of Johnson* or Carlyle's *Essay on Burns.*

2. For reading and practice:

Group I (two to be selected). Shakespeare's *As You Like It, Henry V, Julius Cæsar, The Merchant of Venice, Twelfth Night.*

Group II (one to be selected). Bacon's *Essays*; Bunyan's *Prilgim's Progress, Part I*; the *Sir Roger de Coverly Papers* in the *Spectator*; Franklin's *Autobiography.*

Group III (one to be selected). Chaucer's *Prologue*; Spenser's *Fairie Queene* (selections); Pope's *The Rape of the Lock*; Goldsmith's *The Deserted Village*; Palgrave's *Golden Treasury* (*First Series*) *Books II and III*, with special attention to Dryden, Collins, Gray, Cowper, and Burns.

Group IV (two to be selected). Goldsmith's *The Vicar of Wakefield*; Scott's *Ivanhoe*; Scott's *Quentin Durward*; Hawthorne's *The House of Seven Gables*; Thackeray's *Henry Esmond*; Mrs. Gaskell's *Cranford*; Dickens's *A Tale of Two Cities*; George Eliot's *Silas Marner*; Blackmore's *Lorna Doone*.

Group V (two to be selected). Irving's *Sketch Book*; Lamb's *Essays of Elia*; DeQuincey's *Joan of Arc*, and *The English Mail Coach*; Carlyle's *Heroes and Hero Worship*; Emerson's *Essays* (selected); Ruskin's *Sesame and Lilies*.

Group VI (two to be selected). Coleridge's *Ancient Mariner*; Scott's *Lady of the Lake*; Byron's *Mazeppa*, and *Prisoner of Chillon*; Palgrave's *Golden Treasury* (*First Series*), *Book IV*; Macaulay's *Lays of Ancient Rome*; Poe's *Poems*; Lowell's *Vision of Sir Launfal*; Arnold's *Sohrab and Rustum*; Longfellow's *Courtship of Miles Standish*; Tennyson's *Gareth and Lynette*, *Lancelot and Elaine*, and *The Passing of Arthur*; Browning's *Poems* (selected).

LATIN

1. Latin Grammar, easy composition and easy reading.... 1 unit
2. Cæsar .... 1 unit

   Any four books of the *Gallic War*.
3. Cicero.. 1 unit

   Any six orations.
4. Virgil .... 1 unit

   The first six books of the *Æneid*.

   Equivalents in Nepos, Sallust, Ovid, and other Latin authors may be offered in place of the reading indicated above.

GREEK

1. Grammar and Composition.......................... 1 unit

   The common forms, idioms, and constructions, and the general grammatical principles of Attic Greek prose. Translation into Greek of detached sentences and into English of easy Greek narrative.

1. Xenophon .... 1 unit

   The first four books of the Anabasis.

GERMAN

Elementary German ---------------------------------- 1 to 2 units

The examination will be suited to the proficiency of those who have had two years of German in a preparatory school, and will test (a) the candidate's knowledge of the rudiments of German grammar; (b) ability to read easy prose at sight, and (c) to translate simple English sentences into German. The candidate should have read two hundred pages of easy prose.

FRENCH

Elementary French ---------------------------------- 1 to 2 units

The examination will be suited to the proficiency of those who have had two years of French in a preparatory school, and will include (a) the translation at sight of ordinary nineteenth century prose; (b) the translation from English into French of sentences to test the candidate's familiarity with elementary grammar. The candidate should have read three hundred pages of simple prose.

SPANISH

Elementary Spanish ---------------------------------- 1 to 2 units

The preparation in Spanish should follow the plan outlined for the work in French. The amount of reading prescribed should be about the same.

HISTORY

1. Ancient History ---------------------------------- 1 unit

   Greece and Rome should be emphasized: The completion of Myer's *Short History of Ancient Times,* or the equivalent.
2. Mediaeval and Modern History ---------------------------------- 1 unit

   The completion of Myer's text or the equivalent.
3. History of England ---------------------------------- 1 unit

   The completion of Montgomery's *English History* or the equivalent.
4. History of the United States ---------------------------------- 1 unit

   A credit of one unit is granted for a high school course requiring one year for completion.

CIVICS

Civics ---------------------------------- ½ to 1 unit

A credit of one unit is granted for high school work in civics requiring one year for completion.

SCIENCE

1. Botany .... ½ to 1 unit

   The preparation in botany should include anatomy and morphology; physiology; ecology; the natural history of the plant groups and classification. Considerable time should be given to laboratory and field work, and records of the work should be kept in notebooks.

2. Chemistry .... ½ to 2 units

   The preparation in chemistry should include laboratory work, comprising at least 40 exercises; instruction by lecture and demonstration; and study of a standard text like Smith's *Essentials of Chemistry*. The laboratory notebook should be kept.

3. Physics .... ½ to 1 unit

   A year's work in physics should include the thorough study of a good text, like Higgin's *Physics*, supplemented by lectures and demonstrations, and by individual laboratory work comprising at least 40 exercises, the results of which should be kept in a notebook.

4. Physical Geography .... ½ to 1 unit

   The preparation should include at least one modern text-book as Maury-Symond's *Physical Geography*.

5. Commercial Geography .... ½ unit

   A credit of ½ unit is granted for a high school course requiring at least one-half year for completion.

6. Physiology .... 1 unit

   Any good high school text.

7. Zoology .... ½ to 1 unit

   One year's work following a good elementary text-book, with at least forty hours of laboratory work and excursions.

8. Agriculture .... ½ to 2 units

   For a credit of one unit the course should have been guided by some good text like Duggar's *Agriculture*, with practical demonstrations and experiments by the student in the school garden or on the farm. Practical experience on the farm will also be counted toward this credit, and where this practical experience has extended over two or more years it may be accepted as fulfilling the requirements without the textbook study. Additional credit for more advanced study.

9. Biology -- ½ to 1 unit

One full year's work following a good elementary textbook with at least forty hours of laboratory work and excursions covering the elements of botany and zoology. Notebook with original drawings should be kept.

DRAWING

Drawing -- ½ to 3 units

For a credit of one unit a full year's work in freehand or mechanical drawing, including geometrical plane and solid figures, simple pieces of machinery, and with a fair knowledge of the rules of perspective and light and shade sketching from casts, plants, and other objects. Additional credit will be granted for more advanced work.

PSYCHOLOGY AND PEDAGOGY

Psychology and Pedagogy ---------------------------------- 1 unit

For credit in either of these subjects, a student must have studied at least a half year in a regular course based on some elementary text like Halleck's *Psychology* and White's *Theory and Practice of Teaching.*

SHOPWORK

1. Woodwork -- 1 unit

One full year's work of not less than six hours per week in woodworking, including bench work, joining, turning, and construction of useful objects.

2. Forge, foundry, and machine work --------------- ½ to 3 units

Proficient training in these subjects will be credited according to the time they are systematically followed, two hours of laboratory instruction being counted as one hour of recitation. The student should be familiar with the usual shopwork process and methods of work, and the properties of the materials commonly used in construction.

MUSIC

1. Musical Appreciation ---------------------------------- 1 unit

A general knowledge of the principal musical forms—song, classic dance, fugue, sonata (all movements), and symphony—and of their historical development; and acquaintance with the lives of the great composers and with their compositions. A reasonable familiarity with the more commonly heard works of the best composers, as Bach, Handel, Haydn, Mozart, Beethoven, Weber, Schubert, Mendelssohn, Chopin, Schumann, Wagner, etc.

2. Harmony .... 1 unit

The ability to harmonize a single soprano of not fewer than eight measures in four vocal parts, involving, in major and minor modes, diatonic chords of the seventh and modulation, transient or complete, to next-related keys; the ability to analyze (by indicating the keys, the chords, and the various non-harmonic tones employed), a simple piece of music involving altered chords, passing tones, suspensions, appoggiaturas, and pedal point.

3. Musical Performance .... 1 unit

The ability to play acceptably at sight the simpler pieces of the classic composers, on the piano, organ, violin, or voice. The required technique should be the result of at least two years' instruction under a competent teacher.

DOMESTIC SCIENCE

Domestic Science .... 1 to 2 units

One full year's work of not less than six hours per week in cookery, sewing, fitting, or other work usually included in high school courses in this subject.

BOOKKEEPING

Bookkeeping .... ½ to 1 unit

Theory and practice involved in the historical entry, journalizing, special column, the balance sheet, and the customs and laws governing invoices, notes, drafts, bills of lading, receipts, etc. Applicants must be prepared to write out any of the forms involved in the above requirements.

STENOGRAPHY AND TYPEWRITING

Stenography and Typewriting .... ½ to 1 unit

The ability to write from dictation at the rate of forty words a minute, and to transcribe same on the typewriter at the rate of thirty words per minute. Spelling and punctuation must be up to a grade of ninety.

ADMISSION ON CERTIFICATE

Applicants will be admitted without examination on presenting a certificate from any of the *Certficate Schools* named herein.

The following educational institutions having made application to be correlated to this college and having presented an approved course of study, are hereby declared to be *Certificate Schools*, and are granted the privilege set forth in the following:

"Students from certificate schools will be admitted to the Freshman class *without examination* upon the certificate of the president or principal, showing definitely that such students have completed satisfactorily all the studies required for admission, as stated in the catalogue, and are otherwise admissible."

The privilege of admitting students to the sophomore class on certificates will be granted only to those approved schools that previously had pupils admitted to that class without conditions.

Admission by certificate is regarded as provisional. That is, though admitted to the class for which the certificate calls, the applicant may be required to take special examination in any subject in which his preparation proves unsatisfactory, or, after a fair trial, he may be dropped to a lower class, if he fails to maintain standing in the class to which he may be admitted.

District Agricultural Schools.

First, Jackson	J. W. Watson
Second, Evergreen	J. T. McKee
Third, Abbeville	W. W. Benson
Fourth, Sylacauga	Joseph S. Ganey
Fifth, Wetumpka	A. S. Ford
Sixth, Hamilton	H. O. Sargent
Seventh, Albertville	E. A. Miller
Eighth, Athens	J. M. Atkinson
Ninth, Blountsville	W. B. Crumpton, Jr.
Northeast Alabama Agricultural and Industrial Institute, Lineville	J. R. McCain

County High Schools.

Autauga, Prattville	A. S. Dale
Barbour, Clio	A. C. Anderson
Bibb, Centerville	L. L. Vann
Blount, Oneonta	T. C. Moore
Calhoun, Oxford	T. A. Anderson
Chambers, Milltown	J. D. Pepper
Cherokee, Center	J. A. Johnson
Choctaw, Butler	W. F. Osburn
Clarke, Grove Hill	J. W. McLeod
Clay, Ashland	F. D. Graves
Cleburne, Heflin	L. K. Benson
Coffee, Enterprise	F. M. Fleming
Colbert, Leighton	C. V. Thompson
Coosa, Rockford	R. L. Griffin
Cullman, Cullman	W. L. Hicks

Dale, Ozark	N. A. Jones
Dallas, Plantersville	M. J. Bray
DeKalb, Ft. Payne	H. T. Wallace
Elmore, Eclectic	J. J. Yarbrough
Escambia, Atmore	C. A. Peavey
Etowah, Attalla	O. P. Smith
Franklin, Russellville	E. T. Bolding
Geneva, Hartford	B. H. Boyd
Henry, Headland	W. S. Sconyers
Houston, Columbia	C. W. Johnson
Jackson, Scottsboro	J. T. Huffstutler
Lamar, Vernon	S. B. Gibson
Lauderdale, Rogersville	W. L. Davis
Lawrence, Moulton	J. M. Crowell
Lee, Opelika	W. S. McLeod
Limestone, Elkmont	E. B. Baxter
Lowndes, Ft. Deposit	J. L. Moulder
Macon, Notasulga	H. C. McDonald
Madison, Gurley	B. E. Berry
Marengo, Thomaston	W. C. Blasingame
Marion, Guin	J. B. Clark
Marshall, Guntersville	Oscar Horton
Monroe, Monroeville	J. T. DeBardelaben
Morgan, Hartselle	J. H. Riddle
Pickens, Reform	R. L. Reeves
Pike, Brundidge	Neçy Lewis
Randolph, Wedowee	J. A. Parrish
Shelby, Columbiana	L. Leftwich
St. Clair, Odenville	J. O. Sturdivant
Sumter, York	P. B. Pepper
Talladega, Lincoln	J. A. Morgan
Tallapoosa, Dadeville	J. E. Hendley
Walker, Jasper	J. A. Moore
Wilcox, Camden	Claude Hardy
Winston, Double Springs	B. B. McLeran

Other High Schools.

Alexander City High School, Alexander City	J. M. Pearson
Anniston High School, Anniston	D. R. Murphy
Andalusia High School, Andalusia	W. L. Yarbrough
Auburn High School, Auburn	S. C. Godbold
Barnes' School, Montgomery	E. R. Barnes
Banks Stephens' Institute, Forsyth, Ga	J. W. Moseley
Baptist Collegiate Institute, Newton	A. W. Tate

Berry School, Rome, Ga	R. H. Adams
Butler's School, Huntsville	S. B. Butler
Brewton High School, Brewton	G. A. Harris
Bessemer High School, Bessemer	A. A. Persons
Birmingham High School, Birmingham	C. A. Brown
Carrollton High School, Carrollton, Ga	H. B. Adams
Cordova High School, Cordova	G. Gilliland
Bay Minette High School, Bay Minette	S. M. Thorpe
Dothan High School, Dothan	J. V. Brown
Demopolis High School, Demopolis	K. G. Hoover
Decatur High School, Decatur	J. M. Collier
Edgar's School for Boys, Montgomery	R. B. Edgar
Eutaw High School, Eutaw	A. F. Jackson
Eufaula High School, Eufaula	H. L. Upshaw
Georgia Military Academy, College Park, Ga	J. C. Woodward
Gaylesville High School, Gaylesville	G. A. Orr
Georgiana High School, Georgiana	E. L. Stough
Greenville High School, Greenville	C. B. Gamble
Gadsden High School, Gadsden	W. C. Griggs
Geneva High School, Geneva	M. L. Black
Haleyville High School, Haleyville	H. G. Dowling
Healing Springs Industrial Academy, Healing Springs	C. C. Smith
Huntsville High School, Huntsville	R. E. Sessions
LaFayatte High School, LaFayette	F. T. Appleby
Luverne High School, Luverne	C. K. Sharp
Linden High School, Linden	J. J. Holliday
Central High School, Memphis, Tenn.	N. M. Williams
Mt. Willing High School, Mt. Willing	J. W. Wray
Mobile Military Institute, Mobile	F. R. Peterson
Montgomery High School, Montgomery	C. L. Floyd
Midway Highway School, Midway	S. W. Hixon
Mobile High School, Mobile	S. S. Murphy
New Decatur High School, New Decatur	W. F. Jones
Noble Institute, Anniston	Rev. James P. Glass
O'Neal High School, Cordele, Ga	J. Scarboro
Opp High School, Opp	J. E. Justice
Palmetto High School, Palmetto, Ga.	L. A. Page
Roanoke High School, Roanoke	H. B. Norton
Selma High School, Selma	A. F. Harman
Slocomb High School	G. M. Veasey
Talladega High School, Talladega	D. A. McNeil
The Hillsboro County High School, Florida	E. M. Hyde
Thomasville High School, Thomasville	E. S. Pugh
Thorsby Institute, Thorsby	S. H. Herbert

Tuscumbia High School, Tuscumbia	J. F. Collins
Tuskegee High School, Tuskegee	W. L. Porter
University Military School, Mobile	J. D. Wright
University School, Montgomery	J. M. Starke
University High School, Birmingham	J. J. White, M. B. Dickinson
Union Springs High School, Union Springs	E. C. Pugh
Williams School, Huntsville	Williams

ADMISSION OF YOUNG WOMEN

Young women of mature mind and character, who are at least seventeen years of age, will be admitted to the Alabama Polytechnic Institute as regular students or as special or irregular when they have satisfied the requirements for admission to the sophomore class. Upon the approval of the Faculty, applicants may be admitted at an age less than seventeen years if a resident of Auburn will act as guardian.

The only conditions imposed will be that they engage in earnest study and attend the exercises regularly. They will board in town with private families and will attend college only at the hours of their exercises.

NUMBER OF EXERCISES REQUIRED

All students are required to have *not less than fifteen* recitations per week, or their equivalent, in addition to the exercises in laboratory work, drawing, and military drill. These additional exercises occupy not less than twelve hours per week, and in all give twenty-seven to thirty hours per week required in college exercises.

SPECIAL AND IRREGULAR STUDENTS

The privilege of electing studies in the lower classes is not granted to young students nor to their parents.

The faculty will assign a student, on admission, to that class of a prescribed course for which he is qualified, and for special reasons, approved by the faculty, he may be permitted to become irregular.

Students qualified to prosecute the studies of the junior class, and those over twenty-one years of age that are not candidates for a degree, are permitted to take, with the advice of the faculty, the subjects of study for which they may on examination prove themselves qualified.

For an applicant to enter upon the study of civil, mining, electrical, or mechanical engineering as a special or irregular student he must have studied algebra through quadratics and logarithms, plane geometry, and plane trigonometry.

The professor in charge of a department will decide by examination whether a special student is prepared for admission to his class.

A student who does not take all the studies in a class of one of the degree courses, as prescribed in the catalogue, and is permitted to take an irregular course, will be assigned to a member of the faculty, who will act as his special adviser, and when his course of study has been approved by the faculty, no other change will be permitted without the endorsement of his adviser.

Regular students who fail to pass satisfactory final examinations in any one study become irregular students. They will be classed as regular students pursuing a course for a degree, whenever they can pass the examination in those subjects in which they were found deficient.

Students, candidates for a degree who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies, and their names are so placed in the catalogue.

ADMISSION TO HIGHER CLASSES

For admission to the higher classes, students should be prepared to stand satisfactory examination in all of the studies of the lower classes, as shown in the course of study. Where opportunity has not been offered to pursue special studies required at this institution, the system of *equivalents* will be adopted, and studies which denote an equivalent amount of discipline and training will be accepted as satisfactory. But if not prepared to pass an examination in history and chemistry at the time of application, the applicant will be required before graduation to pass a satisfactory examination on these subjects.

It is absolutely essential that students who hope to succeed should be well grounded in arithmetic, algebra and geometry.

A working knowledge of the metric system should also be obtained.

At the beginning of each term a conditioned student may, on application approved by the faculty, be examined for admission to the freshman class in history, English, or mathematics, and be admitted to the freshman class in those subjects in which he passes a satisfactory examination.

Students who have completed satisfactorily all the studies of the sophomore class, as prescribed in the catalogue, in any one of the regular degree courses, can enter without condition, the junior class in any course except that sophomore Latin is required for the general course and for the course in pharmacy, and sophomore botany is required for all the courses in the college of agricultural sciences. Physiology is required of students taking veterinary science.

Students who are admitted to the junior class from other institutions, on examinations in English, Latin and mathematics, and who have not completed all the studies of the sophomore class, in order to graduate, will be required to complete the courses in freshman chemistry and sophomore history. In addition to these two subjects, students who thus enter the junior class of the course in agriculture, will be required to complete the course in botany in the sophomore class.

COURSES OF INSTRUCTION

The courses of study include the physical, chemical, and natural sciences, with their applications; agriculture, botany, animal industry, horticulture; mechanics, astronomy, mathematics; drawing; civil, electrical, mechanical and mining engineering; architecture; physiology and veterinary science, pharmacy; English, French, German, and Latin languages; history, political economy; mental and moral sciences.

The studies are arranged in regular courses so as to offer liberal and practical education as a preparation for the active pursuits of life.

There are ten degree courses for undergraduates, each leading to the degree of Bachelor of Science (B. S.) and requiring four years for its completion:

I. Course in Civil Engineering.
II. Course in Electrical Engineering.
III. Course in Mechanical Engineering.
IV. Course in Mining Engineering.
V. Course in Architecture.
VI. Course in Chemistry and Metallurgy.
VII. Course in Agriculture.
VIII. Course in Pharmacy.
IX. Course in Chemical Engineering.
X. General Course.
XI. Two-Year Course in Mechanic Arts.
XII. Two-Year Course in Agriculture.
XIII. Two-Year Course in Pharmacy. (Ph. G.)
XIV. Three-Year Course in Pharmacy. (Ph. C.)
XV. Three-Year Course in Veterinary Medicine. (D. V. M.)
XVI. Two-Year Course in Applied Electricity.
XVII. Course for Road Foremen and Inspectors.

Course I. includes the principles and applications of sciences that directly relate to civil engineering, and is adapted to those who expect to enter that profession.

Course II. includes, besides the general principles and applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged to fit men for the profession of electrical engineering.

Course III. furnishes instruction in steam engineering, materials of construction, drawing, and machine design, electrical engineering, together with laboratory work. The course is intended to qualify men to fill positions in the manufacturing industries.

Course IV. includes theoretical and practical instruction in geology, mineralogy; chemistry, civil and electrical engineering, as applied to mines, mapping, exploration; boring; ventilation; timbering, and all the operations pertaining to the profession of mining engineering.

Course V. has been arranged to give theoretical and practical knowledge of architecture in order to enable students to take advantage of office opportunities upon graduation. It embraces architectural drawing and design, history, and ornamental architectural engineering, and office practice.

Course VI. provides for thorough theoretical and practical instruction in pure and technical chemistry and metallurgy, and in the scientific branches relating thereto. Students taking this course also pursue the study of German or French during the junior and senior years, and are thus prepared to utilize for reference and for study scientific journals and works published in those languages.

Course VII. includes theoretical and practical instruction in those branches that relate to agriculture, horticulture, animal industry, botany and entomology, and is especially adapted to those who intend to devote themselves to agricultural and horticultural pursuits.

Course VIII. includes, besides the general education of Course VI. of the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Course IX. has been arranged for students who desire preparation for chemical engineering work with special reference to planning, construction and operation of plants employed in the chemical industries, such as the manufacture of fertilizers, sugars, ceramics, oils and fats, and their products, coal by-products, etc., etc.

Course X. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as those who intend ultimately to engage in teaching or in some commercial or professional business.

Courses XI., XII., XIII., XIV., XV., XVI., and XVII. have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and to take one of the regular degree courses. To enter these courses a student must be not less than seventeen years of age.

Special Course in Agriculture.—Young men over twenty-one years of age who desire to study agriculture will be permitted, without examination, to enter any class under the professor of agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied. They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus in one year acquire valuable practical knowledge of scientific agriculture.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, with approval of the faculty, may be awarded a certificate of proficiency in that subject.

Students who complete one of the two-year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

A student who completes the work of the two-year course in pharmacy and submits a satisfactory thesis will be granted the degree of Graduate in Pharmacy, (Ph. G.)

A student who completes the work of the three-year course in pharmacy and submits a satisfactory thesis will be granted the degree of Pharmaceutical Chemist, (Ph. C.)

A student who completes the work of the three-year course in veterinary medicine and submits a satisfactory thesis will be granted the degree of Doctor of Veterinary Medicine, (D. V. M.)

No degree or certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English. Every candidate for a degree will be required to stand this special examination during the senior year.

Declamations and themes or orations are required of all regular students pursuing courses leading to a degree. For requirements, see Department of English.

GRADUATE COURSES.

A more extended graduate course of study may be taken by a graduate of this institution or of any college of equal grade. The completion of a course which leads to a post-graduate degree of Master of Science requires one year's residence, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the faculty.

The candidate must also present to the faculty a satisfactory thesis showing independent investigation upon some subject pertaining to his course, and must pass an examination, at the close of each term, on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the faculty.

The subject for the thesis must be submitted to the faculty for approval prior to January 1st, and the thesis given to the professor of English by May 1st.

Applicants for a post-graduate degree and special students in post-senior studies are subject to the same general regulations as other students, and *pay the same fees*; but are exempt from all military duty.

The following courses are prescribed for the degree named:

1. *Master of Science.*—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class; or in special cases, with the approval of the faculty, a student may devote his full time to work in two departments, in each of which he has completed the full senior course.

2. *Master of Science in Pharmacy.*—Pharmacy and chemistry.

PROFESSIONAL DEGREES IN ENGINEERING

1. *Degrees in Course.*—The professional degree of Civil Engineer, Electrical Engineer, Mechanical Engineer, Chemical Engineer, or Engineer of Mines will be conferred upon graduate students upon the satisfactory completion of the course of study prescribed, a residence of one year at the institute being required for the completion of these courses.

A written application stating the degree desired and the course of study selected must be submitted to the faculty at the beginning of the session. A satisfactory thesis must be submitted by May 1st.

The following courses of study are prescribed for the degrees named:

Civil Engineer.—Civil engineering and any two subjects selected from the following: Mathematics, analytical mechanics, mechanical engineering, electrical engineering, mining engineering, bacteriology.

Electrical Engineer.—Electrical engineering and mechanical engineering; or electrical engineering, mathematics and civil engineering.

Mechanical Engineer.—Mechanical engineering and machine design; or mechanical engineering, mathematics and mining engineering.

Chemical Engineer.—Electro-chemistry and advanced analytical or organic chemistry, together with one or more subjects selected from the following: Mechanical engineering, machine design, electrical engineering, mining engineering.

Engineer of Mines.—Graduate students who have completed the course in mining engineering, including German, may apply for this degree. The subjects to be pursued are mining engineering, civil engineering, and one other technical subject relating to mining and metallurgy, and approved by the faculty.

II. Degrees for Professional Work.—The above named professional degrees mav be conferred upon graduates of the Alabama Polytechnic Institute in civil, electrical, mechanical, chemical, and mining engineering, upon complying with the following requirements:

1. The candidate must have spent at least four full years in the practice of that branch of engineering in which he graduated.

2. An approved thesis must be submitted to the faculty not later than May 1st of the year in which the degree is sought.

3. The student must show that he has filled satisfactorily a responsible position in charge of important engineering work. Writ-

ten testimonials from employers or clients will be accepted as evidence of satisfactory service.

4. A written application, stating the degree desired, and giving a report or outline of the professional work upon which the application is based, must be submitted not later than January 1st of the year in which the degree is to be granted.

III. Special Students in Graduate Studies.—Students who are not graduates, but are qualified in special subjects to prosecute graduate studies, and desire to prepare themselves more thoroughly for professional or special work in any of the departments of engineering, in chemistry, pharmacy, veterinary science, or other subjects in which instruction is given, may, when qualified, with approval of the faculty, enter this higher department of study and have all the privileges of post-graduate students.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

Two degrees will not be given the same year.

LABORATORIES.

Laboratory instruction constitutes an important feature in the course of education provided for the students in this institute, and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. Civil Engineering, Field Work, Surveying, Etc.
II. Electrical Engineering, Telephone Engineering.
III. Mechanical Engineering.
IV. Mechanic Arts.
V. Mining Engineering, Mineralogy.
VI. Ore Dressing.
VII. Architecture.
VIII. Technical Drawing, Machine Design.
IX. Chemistry, Metallurgy.
X. Agriculture.
XI. Botany.
XII. Pharmacy, Pharmaceutical Chemistry.
XIII. Horticulture.
XIV. Entomology.
XV. Animal Industry.
XVI. History, English.
XVII. Physics.
XVIII. Military Tactics.
XIX. Veterinary Science, Bacteriology, Physiology.

Note.—Special work in English or history may be taken by students in the general course as a substitute for laboratory work.

ORGANIZATION

The instruction offered by the Institute is arranged in four divisions: (1) College of Engineering and Mines, (2) College of Agricultural Sciences, (3) Academic College, (4) College of Veterinary Medicine and Surgery.

I. The College of Engineering and Mines offers degree courses in (1) civil engineering, (2) electrical engineering, (3) mechanical engineering, (4) mining engineering, (5) chemical engineering, and (6) chemistry and metallurgy.

In addition, students in these courses of the College of Engineering and Mines receive instruction in other departments as follows: Mechanical drawing and machine design, English, mathematics, history, and Latin, modern languages, physics, chemistry, and military science and tactics.

II. The College of Agricultural Sciences offers regular degree courses in (1) agriculture, (2) chemistry, (3) botany, (4) horticulture and forestry, (5) animal industry, and (6) pharmacy; a three-year course in pharmacy and a two-year course in pharmacy; a two-year course in agriculture.

This college comprises the following departments: Chemistry, agriculture, botany, pharmacy, horticulture and forestry, entomology, and animal industry.

In addition, students in the different departments of the College of Agricultural Sciences receive instruction in other departments as follows: English, history and Latin, modern languages, mathematics; mechanic arts, surveying, physics, geology and mining engineering, mechanical drawing and machine design, military science and tactics, and veterinary science.

III. A degree course is offered in the following subjects: Political economy, mental science, English, history and Latin, modern languages, mathematics, physics, military science and tactics; and special pedagogical courses.

In addition, students in the general course receive instruction in the following technical departments: Mechanic arts, drawing, geology, animal industry, chemistry, botany, and agriculture.

IV. The College of Veterinary Medicine and Surgery offers a three-year course leading to the degree of Doctor of Veterinary Medicine. This college comprises the following departments: Veterinary medicine, physiology, surgery, anatomy, therapeutics, pathology, histology, bacteriology, obstetrics, infectious diseases, meat inspection, milk inspection, and animal parasites.

In addition, students in the College of Veterinary Medicine and Surgery receive instruction in other departments as follows: English, chemistry, pharmacy, toxicology and physiological chemistry, animal industry and botany.

By direction of the United States Civil Service Commission and Department of Agriculture, this college has been added to the list of accredited veterinary colleges, and placed in class A.

COURSES OF INSTRUCTION

COURSES OF INSTRUCTION

(Note:—The numbers in the Courses of Instruction refer to the subjects as described under "Description of Courses," pages 99 to 172 of this catalogue. The following abbreviations are used: Ac., Academic Department; Eng., College of Engineering and Mines; Agr., College of Agricultural Sciences; Vet., College of Veterinary Medicine and Surgery; H. Wk., Hours per Week).

GENERAL COURSE

Freshman Class

First Term

	H. Wk.
English (Ac. 101a, 102a)	5
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 401)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	3
Latin (Ac. 209)	4
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Latin (Ac. 209)	3
Mathematics (Ac. 402)	5
Chemistry (Agr 101)	4
Drawing (Eng. 601)	3
Agriculture (Agr. 201)	2
Mechanic Arts (Eng. 303)	6
Military Drill (Ac. 600)	3

Sophomore Class

First Term

	H. Wk.
Latin (Ac. 210)	5
English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Drawing (Eng. 603)	3
Chemical Lab'y (Agr. 110a) or Mechanic Arts (Eng. 304), or other Lab'y	4
Military Drill (Ac. 600)	3

Second Term

Latin (Ac. 210)	5
English (Ac. 104)	3
History (Ac. 202)	3
†Mathematics (Ac. 404)	5
*Surveying (Eng. 101)	5
Drawing (Eng. 603)	3
Chemical Lab'y (Ac. 110a), or Mechanic Arts (Eng. 305) or other Lab'y	4
Military Drill (Ac. 600)	3

Third Term

Latin (Ac. 210)	5
English (Ac. 104)	3
History (x) (Ac. 204)	3
†Mathematics (Ac. 404)	5
*Surveying (Eng. 101)	2
Drawing (Eng. 603)	3
Chemical Lab'y (110a), or Mechanic Arts (Eng. 305) or other Lab'y	4
Military Drill (Ac. 600)	3

(x) Botany (Agr. 301), or Elementary Mechanics (Ac. 503), may be substituted.

* Optional for women.

†With approval of faculty other work may be substituted.

Junior Class

First Term

English (Ac. 107)	3
Latin (Ac. 211)	3
French (Ac. 301a)	4
German (Ac. 305a)	4
Mathematics (Ac. 405)	3

	H. Wk.
Physics (Ac. 504)	3
Military Tactics (Ac. 601)	1
History (a) (Ac. 206)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
Latin (Ac. 211)	3
French (Ac. 301b)	3
German (Ac. 305b)	3
Mathematics (Ac. 405)	3
Physics (Ac. 504)	3
Military Tactics (Ac. 601)	1
History (a) (Ac. 206)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 107)	3
Latin (Ac. 211)	3
French (Ac. 301c)	3
German (Ac. 305c)	4
Mathematics (Ac. 405)	3
Physics (Ac. 504)	3
Military Tactics (Ac. 602)	1
History (a) (Ac. 206)	6
Military Drill (Ac. 600)	3

(a) The student may substitute laboratory of any department of natural science for which he may be qualified.

Senior Class

First Term

	H. Wk.
English (Ac. 109)	2
Mental Science (Ac. 1)	2
Latin (x) (Ac. 212)	3
French (Ac. 302a)	4
German (Ac. 306a)	4
Geology (Eng. 403)	2
Military Science (Ac. 603)	1
History (a) (Ac. 206)	6

Second Term

Political Economy (Ac. 2)	2
Mental Science (Ac. 1)	2
Latin (x) (Ac. 212)	3
French (Ac. 302b)	4
German (Ac. 306b)	4
Geology (Eng. 403)	2
Military Science (Ac. 604)	1
History (a) (Ac. 206)	6

Third Term

Political Economy (Ac. 2)	2
Mental Science (Ac. 1)	2
Latin (x) (Ac. 212)	3
French (Ac. 302c)	4
German (Ac. 306c)	4
Geology (Eng. 403)	2
Astronomy (Ac. 506) or Teachers' Physics (Ac. 508),	2
History (a) (Ac. 206)	6
Military Science (Ac. 605)	1

(x) English Constitutional History may be substituted.

(a) The student may substitute laboratory of any department of natural science for which he may be qualified.

COLLEGE OF ENGINEERING AND MINES

The following studies in the freshman class are prescribed in the departments of civil, electrical, mechanical and mining engineering:

Freshman Class

First Term

	H. Wk.
English (Ac. 101a, 102a)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 101b, 102b)	5

	H. Wk.
History (Ac. 201)	3
Mathematics (Ac. 402)	5
Agriculture (Agr. 201, 801)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 303)	6
Military Drill (Ac. 600)	3

CIVIL ENGINEERING

Sophomore Class

First Term

English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Plane Surveying (Eng. 102)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 304)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term

English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 404)	5
Topographic Surveying (Eng. 103)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 305)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term

English (Ac. 104)	3
Elementary Mechanics (Ac. 503)	3
Mathematics (Ac. 404)	5
Railroad Surveying (Eng. 104)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 305)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Surveying, (Eng. 105):

Sixty hours per week for four weeks immediately after commencement in summer camp.

Junior Class

First Term

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Railroad Surveying (Eng. 106)	6
Roads and Pavements (Eng. 107)	5
Structural Drafting (Eng. 112)	5
Military Tactics (Ac. 601)	1
Machine Shop (Eng. 310) or Mineralogy (Eng. 402)	4
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
Mathematics (Ac. 405, 406)	5
Physics (Ac. 504)	3
Mechanics of Materials (Eng. 110)	5
Road Materials Lab'y (Eng. 108)	3
Structural Drafting (Eng. 112)	5
Field Work	6
Graphic Statics (Eng. 111)	3
Machine Shop (Eng. 310) or Mineralogy (Eng. 402)	4
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

English (Ac. 107)	3
Mathematics (Ac. 406)	5
Physics (Ac. 504)	3
Mechanics of Materials (Eng. 110)	5
Road and Street Improvements (Eng. 109)	6
Structural Drafting (Eng. 112)	5
Machine Shop (Eng. 310) or Mineralogy (Eng. 402)	4
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

Surveying. Sixty hours per week for four weeks immediately after commencement in summer camp.

Senior Class

First Term

English (Ac. 108)	2
Mathematic (Ac. 407)	3
Physics (Ac. 505)	2

	H. Wk.
Geology (Eng. 403)	2
Theory of Structures (Eng. 113)	5
Railroad Engineering (Eng. 115)	3
Bridge and Structural Design (Eng 114)	9
Military Science (Ac. 603)	1
Thesis (Eng. 121)	4

Second Term

Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Geology (Eng. 403)	2
Theoretical Hydraulics (Eng. 116)	5
Concrete and Masonry Construction (Eng. 118)	3
Military Science (Ac. 604)	1
Mechanical Engineering Lab. (Eng. 319)	4
Thesis (Eng. 121)	9

Third Term

Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Geology (Eng. 403)	3
Sanitary Engineering (Eng. 120)	5
Masonry and Concrete Construction (Eng. 119)	3
Practical Hydraulics (Eng. 117)	4
Bridge and Structural Design (Eng. 114)	9
Military Science (Ac. 605)	1

ELECTRICAL ENGINEERING

Sophomore Class

First Term

English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Surveying (Eng. 102)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 304)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (Ac. 104)	3
History (Ac. 2 2)	3
Mathematics (Ac. 404)	5
Applied Mechanics (Eng. 306)	3
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 305)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term

English (Ac. 104)	3
Elementary Mechanics (Ac. 503)	3
Mathematics (Ac. 404)	5
Strength of Materials (Eng. 307)	3
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 305)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Junior Class

First Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 201)	3
Electrical Meas. (Eng. 205)	1
Kinematics (Eng. 604)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 308)	1
Electrical Lab'y (Eng. 206)	4
Shop Work (Eng. 309)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
Mathematics (Ac. 405, 406)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 202)	3
Electrical Meas. (Eng. 205)	1
Mechanics (Eng. 306)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 308)	1
Electrical Lab'y (Eng. 207)	4
Shop Work (Eng. 309)	6

	H. Wk.
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

English (Ac. 107)	3
Mathematics (Ac. 406)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 203)	3
Electrical Tests (Eng. 205)	1
Strength Materials (Eng. 307)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 308)	1
Electrical Lab'y (Eng. 208)	4
Shop Work (Eng. 309)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

Senior Class

First Term

English (Ac. 108)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Electrical Eng. (Eng. 210)	5
Electrical Lab'y (Eng. 213)	4
Electrical Desig'ng (Eng. 211)	2
Telephone Eng. (Eng. 216)	2
Telephone Lab'y (Eng. 207)	2
Steam Engines (Eng. 311)	5
Mech. Eng. Lab'y (Eng. 318)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 603)	1

Second Term

Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Electrical Eng. (Eng. 211)	5
Electrical Lab'y (Eng. 213)	4
Electrical Designing (Eng. 211)	2
Telephone Eng. (Eng. 216)	2
Telephone Lab'y (Eng. 217)	2
Thermodynamics (Eng. 312)	5
Mech. Eng. Lab. (Eng. 319)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 604)	1

Third Term

	H. Wk.
Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Electrical Eng. (Eng. 212)	5
Electrical Eng. Lab. (Eng. 213)	4
Specifications and Contracts (Eng. 219)	2
Thermodynamics (Eng. 312)	5
Mech. Eng. Lab. (Eng. 320)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 605)	1

MECHANICAL ENGINEERING

Sophomore Class

First Term

English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Surveying (Eng. 102)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 304)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term

English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 404)	5
Applied Mechanics (Eng. 306)	3
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 305)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term

English (Ac. 104)	3
Elementary Mechanics (Ac. 503)	3
Mathematics (Ac. 404)	5
Strength of Materials (Eng. 307)	3
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 305)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Junior Class

First Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5

	H. Wk.
Physics (Ac. 504)	3
Kinematics (Eng. 604)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Electrical Eng. (Eng. 204)	3
Elec. Eng. Lab'y (Eng. 206)	4
Practical Mechanics (Eng. 308)	1
Shop Work (Eng. 309)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
Mathematics (Ac. 405, 406)	5
Kinematics (Eng. 604)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Electrical Eng. (Eng. 204)	3
Elec. Eng. Lab'y (Eng. 206)	4
Practical Mechanics (Eng. 308)	1
Shop Work (Eng. 309)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

English (Ac. 107)	3
Mathematics (Ac. 406)	5
Physics (Ac. 504)	3
Strength of Materials (Eng. 307)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Electrical Eng. (Eng. 204a)	3
Elec. Eng. Lab'y (Eng. 208)	4
Practical Mechanics (Eng. 308)	1
Shop Work (Eng. 309)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

Summer course, Engineering 317. Taken immediately after commencement.

Senior Class

First Term

	H. Wk.
English (Ac. 108)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Electrical Eng. (a) (Eng. 217)	3
Heating and Ventilating (Eng. 313)	2
Mech. of Materials (Eng. 315)	3
Power Plant Eng. (Eng. 311)	5
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Elec. Eng. Lab'y (Eng. 218)	4
Mech. Eng. Lab'y (Eng. 318)	3
Military Science (Ac. 603)	1

Second Term

Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Hydraulics (Eng. 110)	5
Thermodynamics (Eng. 312)	5
Gas Engines (Eng. 314)	2
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Mech. Eng. Lab'y (Eng. 319)	4
Military Science (Ac. 604)	1

Third Term

Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Materials of Mach. (Eng. 315)	3
Thermodynamics (Eng. 312)	5
Contracts and Spec. (Eng. 219)	2
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Mech. Eng. Lab'y (Eng. 320)	4
Military Science (Ac. 605)	1

(a) Courses 113 and 114 in civil engineering may be substituted.

MINING ENGINEERING

Sophomore Class

First Term

English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Plane Surveying (Eng. 102)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 304)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term

English (Ac. 104)	3
History (Ac. 202)	3
Mathematic (Ac. 404)	4
Topographic Surveying (Eng. 103)	5
Descriptive Geomery (Eng. 602)	3

	H. Wk.
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 305)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term

English (Ac. 104)	3
Elementary Mechanics (Ac. 503)	3
Mathematics (Ac. 404)	4
Railroad Surveying (Eng. 104)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 305)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Surveying, (Eng 105):

Sixty hours per week for four weeks immediately after commencement in summer camp.

Junior Class

First Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Geology (Eng. 403)	2
Drawing (Eng. 406)	4
Surveying (Eng. 103)	5
Lab. Mineralogy (Eng. 401)	4
Chemical Lab'y (Agr. 110a)	6
Pratical Mechanics (Eng. 308)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3
Field Work (Eng. 103)	3

Second Term

English (Ac. 107)	3
Mathematics (Ac. 405, 406)	5
Physics (Ac. 504)	3
Mechanics (Eng. 308)	3
Geology (Eng. 403)	2
Drawing (Eng. 406)	4
Mining Engineering (Eng. 404)	5
Laboratory Mineralogy (Eng. 402)	4
Chemical Lab'y (Agr. 110a)	6
Practical Mechanics (Eng. 308)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3
Field Work (Eng. 103)	3

Third Term

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 406)	5
Physics (Ac. 504)	3
Strength of Materials (Eng. 307)	3
Geology (Eng. (403)	2
Drawing (Eng. 406)	4
Mining Engineering (Eng. 405)	5
Laboratory Mineralogy (Eng. 402)	4
Chemical Lab'y (Agr. 110a)	6
Practical Mechanics (Eng. 308)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3
Field Work (Eng. 103)	3

Summer course. Engineering 407. Taken immediately after commencement.

Senior Class

First Term

English (Ac. 108)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Economic Geology (Eng. 408)	2
Mining Engineering (Eng. 410)	3
Electrical Eng. (Eng. 204)	2
*Machine Shop (Eng. 310)	4
Metallurgy (Agr. 104)	3
Drawing (Eng. 411)	3
Military Science (Ac. 603)	1
Assaying (Agr. 110c)	8
Metallurgical Lab'y (Eng. 412)	3

Second Term

Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Hydraulics (Eng. 110)	5
Mining Engineering (Eng. 410)	3
Electrical Eng. (Eng. 204)	2
*Machine Shop (Eng. 310)	4
Metallurgy (Agr. 104)	3
Drawing (Eng. 411)	3
Military Science (Ac. 604)	1
Assaying (Agr. 110c)	8
Metallurgical Lab'y (Eng. 412)	3

Third Term

Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Economic Geology (Eng. 409)	2
Mining Engineering (Eng. 410)	3
*Machine Shop (Eng. 310)	4
Metallurgy (Agr. 104)	3
Drawing (Eng. 411)	3

	H. Wk.
Military Science (Ac. 605)	1
Assaying (Agr. 110c)	8
Metallurgical Lab'y (Eng. 412)	3

*Not required session 1913-14.

ARCHITECTURE

Freshman Class

First Term

English (Ac. 101a, 102a)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	3
Mathematics (Ac. 402)	5
Agriculture (Agr. 201, 801)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 303)	6
Military Drill (Ac. 600)	3

Sophomore Class

First Term

Architectural Drawing (Eng. 501)	6
Freehand Drawing (Eng. 511)	2
Building Materials and Specifications (Eng. 521)	4
Descriptive Geometry (Eng. 602)	4
Mathematics (Ac. 403)	5
English (Ac. 103)	3
Surveying (Eng. 102)	5
History (Ac. 202)	3
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
Architectural Drawing (Eng. 501)	6
Freehand Drawing (Eng. 511)	3
Building Materials and Specifications (Eng. 521)	4
Descriptive Geometry (Eng. 602)	4
Mathematics (Ac. 404)	5
English (Ac. 104)	3
History (Ac. 202)	3
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term

Architectural Drawing (Eng. 501)	6
Freehand Drawing (Eng. 511)	3
Building Materials and Specifications (Eng. 521)	4
Architectural Shades and Shadows (Eng. 541)	4
Mathematics (Ac. 404)	5
English (Ac. 104)	3
Elementary Mechanics (Ac. 503)	3
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Junior Class

First Term

Architectural Drawing and Design (Eng. 502)	8
Freehand Drawing (Eng. 512)	2
Perspective (Eng. 542)	4
History of Architecture (Eng. 532)	2
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
French (Ac. 301a)	4
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

Architectural Drawing and Design (Eng. 502)	8
Freehand Drawing (Eng. 512)	2
History of Architecture (Eng. 532)	2
Mechanics of Materials (Eng. 110)	5
Mathematics (Ac. 405, 406)	5

	H. Wk.
Physics (Ac. 504)	3
French (Ac. 301a)	3
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

Architectural Drawing and Design (Eng. 502)	8
Freehand Drawing (Eng. 512)	2
History of Architecture (Eng. 532)	2
Mechanics of Materials (Eng. 110)	5
Mathematics (Ac. 406)	5
Physics (Ac. 504)	3
French (Ac. 301b)	3
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Senior Class

First Term

Architectural Drawing and Design (Eng. 503)	12
Freehand Drawing (Eng. 513)	2
History of Architecture (Eng. 533)	2
Theory of Structures (Eng.113)	5
Structural Design (Eng. 114a)	2
Mathematics (Ac. 407)	3
English (Ac. 103)	2
Physics (Ac. 505)	2
Military Science (Ac. 603)	2

Second Term

Architectural Drawing and Design (Eng. 503)	12
Freehand Drawing (Eng. 513)	2
History of Architecture (Eng. 533)	2
Concrete and Masonry Construction (Eng. 118)	3
Structural Design (Eng. 114a)	2
Mathematics (Ac. 407)	5
Political Economy (Ac. 2)	2
Physics (Ac. 505)	2
Military Science (Ac. 604)	1

Third Term

	H. Wk.
Architectural Drawing and Design (Eng. 503a)	12
Freehand Drawing (Eng. 513)	2
History of Architecture (Eng. 533)	2
Masonry and Foundations (Eng. 118)	3
Structural Design (Eng. 114a)	4
Political Economy (Ac. 2)	2
Military Science (Ac. 605)	1

CHEMICAL ENGINEERING

Freshman Class

First Term

English (Ac. 101a, 102a)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	3
Mathematics (Ac. 402)	5
Agriculture (Agr. 201, 801)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 303)	6
Military Drill (Ac. 600)	3

Sophomore Class

First Term

English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Descriptive Geometry (Eng. 602)	4
Surveying (Eng. 102)	5
Mechanic Arts (Eng. 304)	4
Chem. Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 404)	5
Descriptive Geometry (Eng. 602)	4
Elementary Mech. (Eng. 306)	3
Mechanic Arts (Eng. 305)	4
Chem. Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 104)	3
Mathematics (Ac. 404)	5
Descriptive Geometry (Eng. 602)	4
Elementary Mech. (Ac. 501)	3
Strength of Materials (Eng. 307)	3
Mechanic Arts (Eng. 305)	4
Chem. Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Junior Class

First Term

English (Ac. 107) or French or German	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 403)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	4
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107) or French or German	3
Mathematics (Ac. 405, 406)	5
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 403)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	4
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
English (Ac. 107) or French or German	3
Mathematics (Ac. 406)	5
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	2
Industrial Chem. (Agr. 102a)	4
Geology (Eng. 403)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	4
Military Drill (Ac. 600)	3

Senior Class

First Term

English (Ac. 108)	2
Physical Chem. (Agr. 108)	2
German or French	3
Economic Geology (Eng. 408)	2
Metallurgy (Agr. 104)	3
Engineering Chem. (Agr. 106)	2
Electrical Eng. (Eng. 204)	2
Military Science (Ac. 603)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 401)	4
Metallurgical Lab'y (Eng. 412)	3

Second Term

Political Economy (Ac. 2)	2
Physical Chem. (Agr. 108)	2
German or French	3
Economic Geology (Eng. 408)	2
Metallurgy (Agr. 104)	3
Electrical Eng. (Eng. 204)	2
Gas Engines (Eng. 314)	2
Theoretical Chem. (Agr. 107)	2
Military Science (Ac. 604)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 402)	4
Metallurgical Lab'y (Eng. 412)	3

Third Term

Political Economy (Ac. 2)	2
Physical Chem. (Agr. 108)	2
German or French	3
Economic Geology (Eng. 408)	2
Metallurgy (Agr. 104)	3
Electrical Eng. (Eng. 204a)	2
Theoretical Chem. (Agr. 107)	2
Military Science (Ac. 605)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 402)	4
Metallurgical Lab'y (Eng. 412)	3

CHEMISTRY AND METALLURGY

Freshman Class

First Term

	H. Wk.
English (Ac. 101a, 102a)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
English (Ac. 101b, 102b)	5
History (Ac. 201)	3
Mathematics (Ac. 402)	5
Agriculture (Agr. 801, 201)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 303)	6
Military Drill (Ac. 600)	3

Sophomore Class

Students in the sophomore class in this course may take either the course prescribed for sophomore students in chemical engineering or that prescribed for students pursuing the course in agriculture.

Junior Class

First Term

	H. Wk.
English (Ac. 107)	3
Bacteriology and Bact. Lab'y (Vet. 108)	6
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng 403)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (Ac. 107)	3
Bacteriology and Bact. Lab'y (Vet. 108)	6
Physics (Ac. 504)	3
Organic Chem. (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 403)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
English (Ac. 107)	3
Physics (Ac. 504)	3
Organic Chem.(Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 403)	2
Military Science (Ac. 602)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	6
Military Drill (Ac. 600)	3

Senior Class

First Term

	H. Wk.
English (Ac. 108)	2
Physical Chem. (Agr. 108)	2
German or French	3
Economic Geology (Eng. 408)	2
Metallurgy (Agr. 104)	3
Engineering Chem. (Agr. 106)	2
Advanced Inorganic Chemistry (Agr. 111)	2
Military Science (Ac. 603)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 401)	4
Metallurgical Lab'y (Eng. 412)	3

Second Term

	H. Wk.
Political Economy (Ac. 2)	2
Physical Chemistry (Agr. 108)	2
German or French	3
Economic Geology (Eng. 408)	2
Metallurgy (Agr. 104)	3
Advanced Inorganic Chemistry (Agr. 111)	2
Theoretical Chem. (Agr. 107)	2
Military Science (Ac. 604)	1
Chemical Lab'y and Assaying (Agr. 110c)	9

	H. Wk.
Mineralogy Lab'y (Eng. 401)	4
Metallurgical Lab'y (Eng. 412)	3

Third Term

Political Economy (Ac. 2)	2
Physical Chemistry (Agr. 108)	2
German or French	3
Economic Geology (Eng. 408)	2
Metallurgy (Agr. 104)	3
Advanced Inorganic Chemistry (Agr. 111)	2
Theoretical Chem. (Agr. 107)	2
Military Science (Ac. 605)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 401)	4
Metallurgical Lab'y (Eng. 412)	3

TWO YEAR COURSE IN MECHANIC ARTS

First Year

First Term

English (Ac. 101a, 102a)	5
History (Ac. 201)	2
Mathematics (Special Course)	5
Elementary Physics (Ac. 501)	3
Drawing (Eng. 601)	3
Shop Work (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Special Course)	5
Elementary Physics (Ac. 501)	3
Drawing (Eng. 601)	3
Shop Work (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Special Course)	5
Agriculture (Agr. 201, 801)	3
Drawing (Eng. 601)	3
Shop Work (Eng. 203)	6
Military Drill (Ac. 600)	3

Second Year

First Term

	H. Wk.
English (Ac. 103a)	3
Mathematics (Ac. 401)	5
Physics (Ac. 502)	3
Drawing (Eng. 603)	3
Surveying (Eng. 101)	5
Shop Work (Eng. 304, 309)	12
Military Drill (Ac. 600)	3

Second Term

English (Ac. 103b)	3
Mathematics (Ac. 402)	4
Physics (Ac. 502)	3
Drawing (Eng. 603)	3
Shop Work (Eng 305, 309)	12
Military Drill (Ac. 600)	3

Third Term

English (Ac. 104)	3
Mathematics (Ac. 402)	4
Elementary Mechanics (Ac. 503)	3
Drawing (Eng. 603)	4
Shop Work (Eng. 305, 309)	12
Military Drill (Ac. 600)	3

TWO YEAR COURSE IN APPLIED ELECTRICITY

First Year

First Term

English (Ac. 101a, 102a)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Mechanical Eng. (Eng. 327)	3
Drawing (Eng. 601)	3
Electrical Lab'y (Eng. 206)	4
Shop Work (Eng. 304)	4
Power Plant (Eng. 220)	4

Second Term

English (Ac. 101b, 102b)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Mechanical Eng. (Eng. 328)	3
Drawing (Eng. 603)	3
Electrical Lab'y (Eng. 207)	4
Shop Work (Eng. 305)	4
Power Plant (Eng. 220)	4

Third Term

English (Ac. 101b, 102b)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 205)	3
Mechanical Eng. (Eng. 329)	3
Drawing (Eng. 603)	3
Electrical Lab'y (Eng. 208)	4
Shop Work (Eng. 305)	4
Power Plant (Eng. 220)	4

Second Year

First Term

	H. Wk.
English (Ac. 103a)	3
Mathematics (Ac. 403)	5
Electrical Eng. (Eng. 217)	4
Mechanical Eng. (Eng. 604)	3
Practical Mech. (Eng. 308)	1
Drawing (Eng. 606)	3
Electrical Lab'y (Eng. 218)	4
Shop Work (Eng. 310)	4
Power House (Eng. 220)	4

Second Term

	H. Wk.
English (Ac. 103b)	3
Surveying (Eng. 101)	5
Electrical Eng. (Eng. 217a)	4
Mechanical Eng. (Eng. 306)	3
Practical Mechanics (Eng. 308)	1
Drawing (Eng. 606)	4
Electrical Lab'y (Eng. 218a)	4
Shop Work (Eng. 310)	4
Power House (Eng. 220)	4

Third Term

	H. Wk.
English (Ac. 104)	3
Street Railways (Eng. 214)	2
Electrical Eng. (Eng. 217b)	4
Mechanical Eng. (Eng. 307)	3
Practical Mechanics (Eng. 308)	1
Surveying (Eng. 101)	2
Drawing (Eng. 606)	4
Electrical Lab'y (Eng. 218b)	4
Shop Work (Eng. 310)	4
Power House (Eng. 220)	4

SPECIAL COURSE FOR ROAD FOREMEN AND INSPECTORS.

First Term

	H. Wk.
Mathematics (special course)	5
Drawing (Eng. 601, 603)	6
Surveying (Eng. 102)	5
Roads and Pavements (Eng. 107)	5
Mechanic Arts (Eng. 301 or 304)	6

Second Term

	H. Wk.
Mathematics (special course)	5
Drawing (Eng. 601, 603)	6
Surveying (Eng. 102)	5
Roads and Pavements (special course)	3
Road Materials Lab'y (Eng. 108)	3
Mechanic Arts(Eng. 302 or 305)	6

Third Term

	H. Wk.
Mathematics (special course)	5
Drawing (Eng. 601, 603)	6
Surveying (Eng. 102)	5
Roads and Pavements (special course)	3
Road and Street Improvements (Eng. 109)	3

COLLEGE OF AGRICULTURAL SCIENCES

AGRICULTURE

Freshman Class

First Term

	H. Wk.
English (Ac. 101a, 102a)	5
History (Ac. 201)	5
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts Laboratory (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanics Arts Laboratory (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
English (Ac. 101b, 102b)	5
History (Ac. 201)	3

	H. Wk.
Mathematics (Ac. 402)	5
Agriculture (Agr. 801, 201)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanics Arts Laboratory Eng. 303)	6
Military Drill (Ac. 600)	3

Sophomore Class

First Term

	H. Wk.
English (a) (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Botany and Botany Laboratory (Agr. 301)	6
Physiology (Vet. 101)	2
Organic Chemistry (Agr 103b)	2
Stock Judging (Agr. 802)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (a) (Ac. 104)	3
History (Ac. 202)	4
Surveying (Eng. 101)	5
Botany and Botany Laboratory (Agr. 301)	6
Physiology (Vet. 101)	2
Stock Judging (Agr. 803)	2
Agriculture (Agr. 202)	2
Organic Chemistry (Agr. 103b)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
English (a) (Ac. 104)	3
Surveying (Eng. 101)	4
Botany and Botany Laboratory (Agr. 301)	6
Vertebrate Zoology	3
Physiology (Vet. 101)	2
Agriculture (Agr. 203)	4
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

(a) Latin may be substituted.

Junior Class

First Term

	H. Wk.
English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103b)	2
*Dairying (c) (Agr. 804)	4
General Bacteriology and Laboratory (Agr. 302)	6
*Veterinary Science and Veterinary Lab'y (b, c) (Vet. 102)	5
Agriculture and Agricultural Lab'y (c) (Agr. 204)	4
Horticulture and Horticultural Lab'y (c) (Agr. 601)	6
Geology (Eng. 403)	2
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Agricultural Chem (Agr. 105)	3
Botany and Botany Laboratory (Agr. 303a)	6
*Veterinary Science and Veterinary Lab'y (b, c) (Vet. 102)	5
*Animal Industry and Animal Industry Laboratory (c) (Agr. 805–806)	6
Horticulture and Horticultural Laboratory (c) (Agr. 602)	6
Geology (Eng. 403)	2
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Agricultural Chem. (Agr. 105)	3
Botany and Botany Laboratory (Agr. 303b)	9
*Veterinary Science and Veterinary Lab'y (b, c) (Vet. 102)	5
*Animal Industry and Animal Industry Laboratory (c) (Agr. 805)	4
Agriculture and Agricultural Laboratory (c) (Agr. 205)	4
Horticulture and Horticultural Lab'y (d) (Agr. 603, 603a)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

(a), (b) French, German or Latin may be substituted.

(c) Six hours of chemical laboratory, Agricultural 110b, may be substituted.

(d) Elective.

*Required of students who expect to specialize in animal industry.

Senior Class

The studies of the course in agriculture are divided into five groups, as follows:

- Group "A," agriculture: Gives special prominence to crops, soils, and farm machinery.
- Group "B," horticulture: Gives special reference to fruit growing, trucking, and landscape gardening.
- Group "C," animal industry: Gives special prominence to all work pertaining to live stock.
- Group "D." agricultural chemistry: Especially designed to prepare students for experiment station and fertilizer control work.
- Group "E," botany: Designed to train students for station work or to pursue advanced work in botany.

The elective work in each group must be approved at the beginning of the senior year by the president and the professor in charge, and with the required work must aggregate at least twenty-one hours, counting two hours laboratory equal to one hour.

The giving of an elective course will be optional with the professor in charge unless it be elected by at least four students.

GROUP "A," AGRICULTURE

First Term

	H. Wk.
Agr. and Agr. Lab. (Agr. 206)	4
Entomology and Ent. Laboratory (Agr. 701, 702)	5
Geology (Eng. 403)	2
Military Science (Ac. 603)	1
German (a) (Ac. 305a)	4
Thesis (Agr. 209)	2

Second Term

	H. Wk.
Agr. and Agr. Lab. (Agr. 212)	4
Forestry and Forestry Laboratory (Agr. 608)	5
Geology (Eng. 403)	2
Military Science (Ac. 604)	1
German (a) (Ac. 305b)	3
Thesis (Agr. 209)	2

Third Term

Agr. and Agr. Lab. (Agr. 208)	4
Ent. and Ent. Lab. (Agr. 703, 704)	5
Military Science (Ac. 605)	1
German (a) (Ac. 305c)	4
Thesis (Agr. 209)	2

(a) French may be substituted.

Electives. The equivalent of at least seven hours from the following subjects:

First Term

Soils and Soils Lab. (Agr. 211)	5
Cotton (Agr. 206)	2
Animal Ind. and Animal Ind. Laboratory (Agr. 806, 809)	4
Hort. and Hort. Lab. (Agr. 604)	3
Plant Breeding and Canning (Agr. 610)	4
Botany and Botany Laboratory (Agr. 304)	6
Vet. Science and Vet. Laboratory (Vet. 102)	5
Industrial Chem. (Agr. 102a)	3
Organic Chem. (Agr. 103a)	2
French (Ac. 302a)	4
Physics (Ac. 505)	2
Chemical Lab. (Agr. 110)	6
Mathematics (Ac. 405, 406 or 407)	3

Second Term

Soils and Soils Lab. (Agr. 211)	5
Agriculture (Agr. 207)	4
Animal Ind. and Animal Ind. Laboratory (Agr. 808)	4
Horticulture (Agr. 606)	5
Botany and Botany Laboratory (Agr. 305)	6
Vet. Science and Vet. Laboratory (Vet. 102)	5
Industrial Chem, (Agr. 102a)	3
Organic Chem. (Agr. 103a)	2
French (Ac. 302b)	4
Chem. Laboratory (Agr. 110)	6
Mathematics (Ac. 405, 406 or 407)	5
Forestry and Forestry Laboratory (Agr. 607)	5

Third Term

	H. Wk.
Soils and Soils Lab. (Agr. 211)	5
Agriculture (Agr. 208)	4
Animal Ind. and Animal Ind. Laboratory (Agr. 807)	4
Horticulture and Horticulture Laboratory (Agr. 609)	7
Botany and Botany Laboratory (Agr. 306)	6
Vet. Science and Vet. Laboratory (Vet. 102)	5
Industrial Chem. (Agr. 102a)	3
Horticulture (Agr. 609)	7
Organic Chem. (Agr. 103a)	2
French (Ac. 302c)	4
Chemical Lab. (Agr. 110)	6
Mathematics (Ac. 405, 406 or 407)	5

GROUP "B," HORTICULTURE

First Term

	H. Wk.
Horticulture and Horticulture Lab'y (Agr. 604, 605)	7
Entomology and Ent. Laboratory (Agr. 701, 702)	5
Geology (Eng. 403)	2
Military Science (Ac. 603)	1
German (a) (Ac. 306a)	4
Thesis (Agr. 610)	

Second Term

	H. Wk.
Horticulture and Horticulture Lab'y (Agr. 606, 607)	7
Forestry and Forestry Laboratory (Agr. 608)	5
Geology (Eng. 403)	2
Military Science (Ac. 604)	1
German (a) (Ac. 306b)	4
Thesis (Agr. 610)	

Third Term

	H. Wk.
Horticulture and Horticulture Lab'y (Agr. 609)	7
Entomology and Ent. Laboratory (Agr. 703, 704)	5
Military Science (Ac. 605)	1
German (a) (Ac. 306c)	4
Thesis (Agr. 610)	

Electives. The equivalent of at least five hours from the subjects as listed under Group "A."

(a) French or English and Political Economy and one additional subject may be substituted.

GROUP "C," ANIMAL INDUSTRY

First Term

	H. Wk.
Animal Industry (Agr. 808, 809)	4
Animal Ind. Lab'y (Agr. 812)	4
Entomology and Entomology Lab'y (Agr. 701, 702)	5
Geology (Eng. 403)	2
Military Science (Ac. 603)	1
German (a) (Ac. 306a)	4
Thesis	

Second Term

	H. Wk.
Animal Industry (Agr. 809, 813)	4
Animal Ind. Lab'y (Agr. 810)	4
Geology (Eng. 403)	2
Military Science (Ac. 604)	1
German (a) (Ac. 306b)	4
Thesis	

Third Term

	H. Wk.
Animal Industry (Agr. 809, 811, 813)	6
Animal Ind. Lab'y (Agr. 811)	2
Entomology and Entomology Lab'y (Agr. 703, 704)	5
Military Science (Ac. 605)	1
German (a) (Ac. 306c)	4
Thesis	

Electives. The equivalent of at least six hours from the subjects listed under Group "A," or the Third Year Course in Veterinary Medicine.

(a) French may be substituted.

(b) Meat and milk inspection may be substituted.

GROUP "D," AGRICULTURAL CHEMISTRY

First Term

	H. Wk.
Chemical Lab'y (Agr. 110)	6
Entomology (Agr. 701, 702)	5
Geology (Eng. 403)	2

	H. Wk.
Military Science (Ac. 603)	1
German (a) (Ac. 306a)	4

Second Term

Chemical Lab'y (Agr. 110)	6
Forestry and Forestry Laboratory (Agr. 608)	5
Geology (Eng. 403)	2
Military Science (Ac. 604)	1
German (a) (Ac. 306b)	4

Third Term

Chemical Lab'y (Ac. 110)	6
Entomology (Agr. 703, 704)	5
Military Science (Ac. 605)	1
German (a) (Ac. 306c)	4

Electives. The equivalent of at least seven hours from the subjects as listed under Group "A."

(a) French may be substituted.

GROUP "E," BOTANY

First Term

German (a) (Ac. 306a)	4
Botany and Bot. Lab'y) (Agr. 304)	6
Soils and Soils Lab'y (Agr. 211)	9
Entomology (Agr. 701, 702)	5
Military Science (Ac. 603)	1

Second Term

German (a) (Ac. 306b)	4
Botany and Bot. Lab'y (b) (Agr. 305)	6
Soils and Soils Lab'y (Agr. 211)	5
Forestry and Forestry Laboratory (Agr. 609)	5
Military Science (Ac. 604)	1

Third Term

German (a) (Ac. 306c)	4
Botany and Bot. Lab'y (Agr. 306)	6
Soils and Soils Lab'y (Agr. 211)	5
Entomology (Agr. 702)	5
Physiological Chemistry (Phar. 405f)	5
Military Science (Ac. 605)	1

Electives. The equivalent of at least six hours from the subjects listed under Group "A," subject to the direction of the professor.

(a) French may be substituted for German.

(b) Plant Breeding (Agr. 610) may be substituted.

TWO YEAR COURSE IN AGRICULTURE

First Year

First Term

	H. Wk.
Dairying (Agr. 816)	2
Veterinary Science (Vet. 102)	5
Chemistry (Agr. 101)	4
English (Ac. 101a)	3
Physiology (Vet. 101)	2
Livestock Feeding (Agr. 817)	2
*Chemical Lab'y (Agr. 110a)	6
Military Drill (a) (Ac. 600)	3

Second Term

Soils and Cultivation (Agr. 202)	2
Veterinary Science (Vet. 102)	5
Chemistry (Agr. 101)	4
English (Ac. 101b)	3
Physiology (Vet. 101)	2
Livestock Management (Agr. 818)	2
Livestock Feeding (Agr. 817)	2
Judging Livestock (Agr. 819)	4
*Chemical Lab'y (Agr. 110a)	6
Military Drill (a) (Ac. 600)	3

Third Term

Forage Plants (Agr. 205)	4
Veterinary Science (Vet. 102)	5
Chemistry (Agr. 101)	4
English (Ac. 101b	3
Physiology (Vet. 101)	2
Livestock Management (Agr. 818)	2
Livestock Feeding (Agr. 817)	2
Botany and Botany Laboratory (Agr. 301)	6
Agriculture (Agr. 203)	4
*Chemical Lab'y (Agr. 110a)	6
Military Drill (a) (Ac. 600)	3

(a) Special agricultural students who are of age are excused from drill.

*Or Mechanic Arts.

NOTE.—In case students in agriculture have conflicts in schedule, satisfactory substitutes will be accepted.

Second Year

First Term

	H. Wk.
Poultry (Agr. 822)	2
Veterinary Science (Vet. 102)	5
Insects (Agr. 701. 702)	5
Agricultural Chem. (Agr. 105)	3
Livestock Judging (Agr. 821)	4
Botany and Botany Laboratory (Agr. 302)	6
Corn (Agr. 204)	2
Cotton (Agr. 206)	4
Chemical Lab'y (Agr. 110b)	6

Second Term

Agriculture (Agr. 212)	2
Stock Feeding (Agr. 805)	2
Veterinary Science (Vet. 102)	5
Swine Judging (Agr. 823)	4
Meats (Agr. 824)	4
Agricultural Chem. (Agr. 105)	3
Plant Breeding (Agr. 302)	6
Chemical Lab'y (Agr. 110b)	6
Forestry (Agr. 609)	4

Third Term

Farm Management (Agr. 208)	4
Bacteriology (Vet. 108)	6
Insects (Agr. 703, 704)	5
Vegetable Gardening (Agr. 603a)	6
Principles of Breeding (Agr. 825)	2
Sheep Judging (Agr. 826)	2
Feeding (Agr. 805)	2
Diseases of Plants (Agr. 302)	6
Chemical Lab'y (Agr. 110b)	6
Hort. Lab'y (Agr. 609)	4

PHARMACY

Freshman Class

First Term

	H. Wk.
English (102a)	3
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 401)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts Laboratory (Eng. 301)	6
Military Drill (Ac. 600)	3

Second Term

English (102b)	3
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts Laboratory (Eng. 302)	6
Military Drill (Ac. 600)	3

Third Term

English (102b)	3
History (Ac. 201)	3
Latin (Ac. 205)	3
Mathematics (Ac. 402)	5
Agriculture (Agr. 801, 201)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts Laboratory (Eng. 303)	6
Military Drill (Ac. 600)	3

Sophomore Class

First Term

Latin (Ac. 210)	5
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Botany and Botany Lab'y (Agr. 301)	6
Drawing (Eng. 603)	3
Physiology (Vet. 101)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term

Latin (Ac. 210)	5
History (Ac. 202)	4
Surveying (Eng. 101)	5
Drawing (Eng. 603)	3
Botany and Botany Lab'y (Agr. 301)	6
Physiology (Vet. 101)	2
Agriculture (Agr. 202)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Third Term

Latin (Ac. 210)	5
Surveying (Eng. 101)	2
Drawing (Eng. 601)	3

	H. Wk.
Botany and Botany Laboratory (Agr. 301)	6
Physiology (Vet. 101)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Junior Class

First Term

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Botany and Botany Laboratory (Agr. 303)	5
Pharmacy (Agr. 401a)	3
Pharmaceutical Lab'y (401b)	3
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110b)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Botany and Botany Laboratory (Agr. 303)	5
Pharmacy (Agr. 401a)	3
Pharmaceutical Laboratory (Agr. 401b)	6
Pharmacognosy (Agr. 402)	3
Chemical Lab'y (Agr. 110b)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Botany and Botany Laboratory (Agr. 303)	5
Pharmacy (Agr. 401a)	3
Pharmaceutical Laboratory (Agr. 401b)	6
Pharmacognosy (Agr. 402)	3
Chemical Lab'y (Agr. 110b)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

(a) French or German may be substituted.

Senior Class

First Term

	H. Wk.
Bacteriology and Bact. Lab'y (Vet. 108)	6
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	3
Commercial Pharmacy (Agr. 404a)	1
Military Science (Ac. 603)	1
Chemical Lab'y (Agr. 110c)	6
Pharmaceutical Laboratory (Agr. 403b)	15

Second Term

Bacteriology and Bact. Lab'y (Vet. 108)	6
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	3
Commercial Pharmacy (Agr. 404a)	1
Military Science (Ac. 604)	1
Chemical Lab'y (Agr. 110c)	6
Pharmaceutical Laboratory (Agr. 403b)	15

Third Term

Therapeutics (Vet. 120)	3
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	3
Commercial Pharmacy (Agr. 404a)	1
Military Science (Ac. 605)	1
Toxicology (Agr. 110e)	6
Urinalysis (Vet. 117)	3
Pharmaceutical Laboratory (Agr. 403b)	15

TWO YEAR COURSE IN PHARMACY

First Year

First Term

English (a) (Ac. 101a)	3
Chemistry (Agr. 101)	4
Physiology (Vet. 101)	2
Pharmacy (Agr. 401a)	3
Botany and Botany Lab'y (Agr. 301)	6
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110a,b)	8
Pharmaceutical Laboratory (Agr. 401b)	6
Military Drill (Ac. 600)	3

Second Term

English (a) (Ac. 102b)	3

	H. Wk
Chemistry (Agr. 101)	4
Physiology (Vet. 101)	2
Pharmacy (Agr. 401a)	3
Pharmacognosy (Agr. 402)	4
Botany and Botany Lab'y (Agr. 301)	6
Chemical Lab'y (Agr. 110a,b)	8
Pharmaceutical Laboratory (Agr. 401b)	6
Military Drill (Ac. 600)	3

Third Term

Botany and Botanical Laboratory (Agr. 301)	6
Chemistry (Agr. 101)	4
Physiology (Vet. 101)	2
Pharmacy (Agr. 401a)	3
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110a,b)	8
Pharmaceutical Laboratory (Agr. 303)	6
Military Drill (Ac. 600)	3

(a) Latin may be substituted.

Second Year

First Term

Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	3
Pharmaceutical Laboratory (Agr. 403b)	15
Organic Chem. (Agr. 103a)	2
Chemical Lab'y (Agr. 110c)	6
Bacteriology (Vet. 108)	6
Botany and Bot. Laboratory (Agr. 303)	5
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	3
Pharmaceutical Laboratory (Agr. 403b)	15
Organic Chem. (Agr. 103a)	2
Chemical Lab'y (Agr. 110c)	6
Bacterioloy (Vet. 108)	6
Botany and Bot. Laboratory (Agr. 303)	5
Military Drill (Ac. 600)	3

Third Term

Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	3
Pharmaceutical Laboratory (Agr. 403b)	15
Organic Chem. (Agr. 103a)	2
Toxicology (Agr. 110e)	7
Therapeutics (Agr. 521)	3
Botany and Bot. Laboratory (Agr. 303)	5
Military Drill (Ac. 600)	1

THREE YEAR COURSE IN PHARMACY

In the first and second years the same studies are prescribed as in the Two-Year Course.

Third Year

Entire Session

Pharmaceutical Chemistry and Lab'y (Agr. 405)	20
Chemistry and Chem. Lab'y (Agr. 107, 110)	15
Bacteriological Laboratory (Vet. 108)	3

COLLEGE OF VETERINARY MEDICINE AND SURGERY

THREE YEAR COURSE IN VETERINARY MEDICINE

First Year

First Term

	H. Wk.
General Chem. (Agr. 101)	4
Physiology (Vet. 101)	2
English (Ac. 102a)	3
Anatomy and Anat. Laboratory (Vet. 119)	2
Histology (Vet. 104)	5
Livestock Management (Agr. 810)	2
Chemical Lab'y Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
General Chem. (Agr. 101)	4
Physiology (Vet. 101)	2
English (Ac. 102b)	3
Anatomy and Anat. Laboratory (Vet. 119)	15
Histology (Vet. 104)	5
Stock Feeding (Agr. 810)	2
Chemical Lab'y (Agr. 110b)	6
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
General Chem. (Agr. 101)	4
Physiology (Vet. 101)	2
English (Ac. 102b)	3
Anatomy and Anat. Laboratory (Vet. 106)	14
Embryology (Vet. 105)	5
Judging Livestock (Agr. 804)	2
Chemical Lab'y (Agr. 110b)	6
Military Drill (Ac. 600)	3

Second Year

First Term

	H. Wk.
Botany (Agr. 304)	2
Pharmacy (Agr. 403)	1
Pharmacy Lab'y (Agr. 403a)	4
Vet. Physiology (Vet. 106)	2
Bacteriology and Bact. Lab'y (Vet. 108)	6
Obstetrics (Vet. 110)	2
Vet. Medicine (Vet. 123)	3
Anatomy and Clinical Lab'y (Vet. 119, 122)	12
Military Drill (Ac. 600)	3

Second Term

	H. Wk.
Botany (Agr. 304)	2
Pharmacy (Agr. 403)	5
Pharmacy Lab'y (Agr. 403a)	4
Vet. Physiology (Vet. 106)	2
Bacteriology, Pathology and Lab'y (Vet. 108, 109)	6
Obstetrics and Surgery (Vet. 110, 111)	2
Vet. Medicine (Vet. 123)	3
Anatomy and Clinical Lab'y (Vet. 119, 122)	12
Military Drill (Ac. 600)	3

Third Term

	H. Wk.
Pharmacy (Agr. 403)	1
Pharmacy Lab'y (Agr. 403a)	4
Vet. Physiology (Vet. 106)	2
Therapeutics (Vet. 120)	3
Surgery (Vet. 121)	3
Vet. Medicine (Vet. 123)	3
Pathology and Path. Laboratory (Vet. 109)	6
Anatomy and Clinic Laboratory (Vet. 119, 122)	12
Military Drill (Ac. 600)	3

Third Year

First Term

	H. Wk.
Dairying (Agr. 802)	2
Stock Breeding (Agr. 806)	2
Therapeutics (Vet. 120)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Infectious Diseases (Vet. 113)	2
Meat Inspection (Vet. 115)	2
Anatomy and Clinic Laboratory (Vet. 119, 122)	12
Thesis (Vet. 118)	4

Second Term

	H. Wk.
Surgical Exercises (Vet. 112)	2
Therapeutics (Vet. 120)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Infectious Diseases (Vet. 113)	3
Meat Inspection (Vet. 115)	2
Animal Parasites (Vet. 114)	2
Clinic Lab'y (Vet. 122)	12
Thesis (Vet. 118)	4

Third Term

	H. Wk.
Toxicology (Agr. 110e)	7
Urinalysis (Vet. 117)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Milk Inspection (Vet. 116)	3
Animal Parasites (Vet. 114)	2
Clinic Lab'y (Vet. 122)	12
Thesis (Vet. 118)	4

SCHEDULE OF EXERCISES

rs.	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
th—11-12	1. English (1) 1. Pol. Econ. (2, 3) 2. Chem., Ind. and Org. 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 2. Vet. Medicine 3. Arch. Drawing 3. Mech. Drawing [illegible] (2)	1. Entomology (1, 3) 1. Mental Science 1. Physics 1. Phys. Chemistry 2. Agriculture (1, 3) 2. Animal Industry (2) 2. Chemistry (Org.) 2. Mathematics 2. Pharmacognosy 2. Botany (Vet.)	1. English (1) 1. Pol. Econ. (2, 3) 1. Therapeutics (Ph.)(3) 2. Chemistry (Ind.) 2. Chemistry (Org.) (2) 2. Gen. Pathology (2, 3) 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 3. Botany	1. Botany (Agr.) 1. Physics 1. Phys. Chemistry 1. Mental Science 2. Agriculture (1, 3) 2. An. Ind. (2) 2. Chemistry (Org.) 2. Mathematics 3. Botany (Vet.) 3. Desc. Geom.	2. Chemistry (Ind.) 2. Gen. Pathology (2, 3) 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 3. Drawing (Arch.) 3. Drawing (Mech.) 4. Latin (1, 2) 4. Mechanics Arts 4. Physics (1, 2)	1. Pharmaceutical Lab'y 1, 2, 3. Clinics 3. Mechanic Arts 3. Phys. Lab'y Chemical Lab'y Elec. Lab'y Field Work (Civil and Mining Engineering)
P. M.—2-6	1. Entomology (1, 3) 1. Forestry (2) 1. Mech. Lab'y 1. Toxicology (3) 1, 2, 3. Anatomy Lab'y 1, 2, 3. Chem. Lab'y 1, 2. Clinics (1, 2) 1, 2. Drawing (Arch.) 1, 2. Elec. Lab'y 1, 2. Field Work 1, 2. Machine Work 2. Botany (Agr., Ph.) 2. Pharmacy 3. Botanical Lab'y 3. Desc. Geometry 3. Mechanic Arts 3. Phys. Lab'y 4. Mechanic Arts 1. Civil Eng.	1. Horticul. Lab'y 2. Agriculture (1, 3) 2. Botany (Agr.) (2) 2. Mineralogical Lab'y 1, 2, 3. Anatomy 1, 2. Clinics 1, 2. Drawing (Arch.) 1, 2. History 3. An. Ind. Lab'y (1, 2) 3. Desc. Geometry 3. Mech. Arts 4. Mech. Arts Elec. Lab'y Military Drill	1. An. Ind. Lab'y 1. Mech. Lab'y 1. Toxicology (3) 1, 2, 3. Anatomy 1, 2, 3. Chem. Lab'y 1, 2. Clinics 1, 2. Drawing (Arch.) 1, 2. Field Work 1, 2. Machine Work 2. Botany (Agr.) (1, 3) 2. An. Ind. Lab'y (2) 2. Horticultural Lab'y 3. Botanical Lab'y 3. Desc. Geometry 3. Public Speaking 3. Mech. Arts 3. Phys. Lab'y 4. Mech. Arts Elec. Lab'y Work	1. Botany 1. Spec. & Bldg. Mtls. 1. Telephone Lab'y 1, 2, 3. Anatomy 1, 2. Clinics 1, 2. History 2. Elec. Lab'y 2. Horticultural Lab'y 2. Mineralogy Lab'y 3. Desc. Geometry 3. Mechanic Arts 4. Mechanic Arts Military Drill	1. Horticultural Lab'y 1. Machine Design 1. Mech. Lab'y 1. Toxicology (3) 1, 2, 3. Anatomy 1, 2, 3. Chem. Lab'y 1, 2. Clinics 1, 2. Field Work 1, 2. Mach. Work. 2. Botanical Lab'y 2. Drawing (Arch.) 2. French 2. Graphic Statistics (2) 3. Public Speaking 3. Mechanic Arts 3. Phys. Lab'y 4. Mech. Arts Elec. Lab'y	

Chapel service daily at 7:45 A. M. *From 4:30 to 5:30 P. M.

Numbers prefixed denote classes—1 denotes senior; 2, junior, etc. Numbers affixed—(1), (2), (3), denote terms

NOTE.—The schedule for Botany, Organic Chemistry, Agricultural Chemistry and Surveying in the Sophomore Class will be announced later.

SCHEDULE OF EXERCISES

Hrs.	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
First—8-9	1. An. Chem. (Min.) 1. Bacteriology 1. Botany 1. Drawing 1. Elec. Engineering 1 German 1. Vet. Medicine (1, 2) 2. Arch. History 2. Bacteriology (1, 2) 2. Civil Eng. 2. Drawing 2. Gen. Path. (2, 3) 2. Mech. Eng. 2. Pharmacy 2. Horticultural Lab'y 3. Latin 4. Mathematics	1. Elec. Eng. 1. Infec. Dis. (1, 2) 1. Drawing 2. Botany Lab'y (Phar.) 2. Civil Eng. 2. Drawing 2. German 2. Graphics 2. Machine Design 2. Mineralogy 2. Obstetrics (1, 2) 3. Agriculture (2, 3) 3. An. Industry (1). 3. Latin 4. Mathematics	1. Botany 1. Drawing 1. Dairy Farming (2) 1. Elec. Eng. 1. German 1. Infec. Dis. (1, 2) 1. Milk Insp. (3) 2. Civil Eng. 2. Drawing 2. Mech. Eng. 2. Pharmacy 2. Graphics 2. Vet. Science 3. Ext. Anatomy 3. Latin 4. Mathematics	1. Drawing 1. Elec. Eng. 1. Therapeutics (1, 2) 2. Botany Lab'y (Ph.) 2. Civil Eng. 2. Drawing 2. German 2. Mech. Eng. 2. Mineralogy 3. Histology 3. Latin 4. Mathematics	1. Botany (Agr.) 1. Drawing 1. Elec. Eng. 1. German 1. Infec. Dis. (1, 2) 1. Milk Insp. (3) 2. Civil Eng. 2. Drawing 2. Machine Design 2. Pharmacy 2. Theory of Arch. 2. Vet. Science 3. Exterior Anatomy 3. Latin 4. Mathematics	1. Soils (1, 3) 2. Pharmacy 3. Public Speaking Military Drill
Second—9-10	1. An. Ind. Lab'y 1. Bacteriology 1. Botany Lab'y 1. Calculus 1. Elec. Eng. 1. Surgery (1, 2) 2. Bacteriology (1, 2) 2. Civil Eng. 2. Horticultural Lab'y 2. Latin 2. Mining Eng. 2. Gen. Pathology (2, 3) 3. English 4. Chemistry	1. Agriculture 1. French 1. Mech. Eng. 1. Metallurgy 2. Botany Lab'y (Ph., Agr.) 2. Civil Eng. 2. Elec. Eng. 2. Mach. Design (M.E.) 2. Mining Eng. 3. Desc. Geom. 3. Histology 3. Physiology 4. History	1. Botany Lab'y 1. Calculus 1. Pharmacognosy 1. Soils 1. Vet. Medicine 2. An. Industry (3) 2. Civil Eng. 2. Elec. Eng. 2. Horticulture (1, 2) 2. Latin 2. Mining Eng. 2. Surgery (3) 3. English 3. Histology 4. Chemistry	1. Forestry (2) 1. French 1. Horticulture (3) 1. Machine Design 1. Mech. Eng. 1. Metallurgy 1. Vet. Medicine 1. Vet. Science 2. Arch. History 2. Botany (Agr.) 2. Elec. Eng. 2. Civil Eng. 2. Mining Eng. 3. Agriculture (2, 3) 3. An. Ind. (1) 3. Histology 4. History	1. Calculus 1. Soils 1. Vet. Science 2. An. Ind. (3) 2. Civil Eng. 2. Horticulture (1, 2) 2. Latin 2. Machine Design 2. Mining Eng. 2. Vet. Medicine 3. English 4. Chemistry	1. Arch. Drawing 1. Eng. Chem. 1. Machine Design 1. Soils (1, 3) 2. Arch. Drawing
Third—10-11	1. An. Ind. Lab'y 1. Arch. Eng. 1. Bacteriology 1. Botany Lab'y 1. Civil Eng. 1. Latin 1. Therapeutics (2, 3) 2. Bacteriology (1, 2) 2. Gen. Pathology (2, 3) 2. Physics 4. English	1. An. Industry 1. Civil Eng. 1. Elec. Eng. (Min., Mech.) 1. Botany 1. Horticulture 1. Meat Inspection 1. Pharmacognosy 1. Telephone Eng. 2. Agr. and Org. Chem. 2. French 2. Mach. Design 2. Spec. and Bld'g M'tls 3. An. Ind. 3. Botany (3) 3. Ele. Mechanics (3) 3. History 4. English	1. Arch. Eng. 1. Botany Lab'y 1. Civil Eng. 1. Eng. Contracts 1. Latin 1. Therapeutics (1, 2) 2. Physics 2. Therapeutics (3) 4. English.	1. An. Industry 1. Botany 1. Civil Eng. 1. Elec. Eng. (Min., Mech.) 1. Pharmacognosy 1. Telephone Eng. 1. Vet. Medicine 2. Chemistry (Agr., Org.) 2. French 2. Practical Mach. 2. Spec. and Bld. Mtls. 3. Botany (3) 3. Ele. Mech (3) 3. History 3. Histology 4. English	1. Latin 1. Arch. Eng. 1. Civil Eng. 1. Horticulture 1. Pharmacognosy 2. Obstetrics (1, 2) 2. Physics 2. Therapeutics (3) 4. History (3) 4. English	1. Arch. Drawing 1. Machine Design 1. Soils (1, 3) 1, 2, 3. Clinics 2. Arch. Drawing 3. Surveying (2,3) 3. Phys. Lab'y Chemical Lab'y Field Work, Civil and Mining Engineering Mechanic Arts Elec. Lab'y
Fourth—11-12	1. Botany 1. English (1) 1. Pol. Econ. (2, 3) 2. Chem., Ind. and Org. 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 2. Vet. Medicine 3. Arch. Drawing 3. Mech. Drawing 4. Agriculture (3) 4. Latin (1, 2) 4. Mechanic Arts	1. Bacteriology 1. Entomology (1, 3) 1. Mental Science 1. Physics 1. Phys. Chemistry 2. Agriculture (1, 3) 2. Animal Industry (2) 2. Chemistry (Org.) 2. Mathematics 2. Pharmacognosy 3. Botany (Vet.) 3. Drawing (Arch.) 3. Drawing (Mech.) 4. Latin	1. Botany 1. English (1) 1. Pol. Econ. (2, 3) 1. Therapeutics (Ph.)(3) 2. Chemistry (Ind.) 2. Chemistry (Org.) (2) 2. Gen. Pathology (2, 3) 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 3. Botany 3. Ele. Mechanics (3) 3. History 4. Agriculture (3) 4. Latin (3) 4. Mechanic Arts 4. Physics (1, 2)	1. Bacteriology 1. Botany (Agr.) 1. Physics 1. Phys. Chemistry 1. Mental Science 2. Agriculture (1, 3) 2. An. Ind. (2) 2. Chemistry (Org.) 2. Mathematics 3. Botany (Vet.) 3. Desc. Geom. 3. Physiology 4. Latin	1. Military Science 2. Chemistry (Ind.) 2. Gen. Pathology (2, 3) 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 3. Drawing (Arch.) 3. Drawing (Mech.) 4. Latin (1, 2) 4. Mechanics Arts 4. Physics (1, 2) 4. Agriculture	1. Machine Design 1. Pharmaceutical Lab'y 1, 2, 3. Clinics 3. Mechanic Arts 3. Phys. Lab'y Chemical Lab'y Elec. Lab'y Field Work (Civil and Mining Engineering)
Fifth—12-1	1. Civil Eng. 1. Agriculture 1. Botany 1. Chemistry (Theo.) 1. Drawing (Arch.) 1. French 1. Meat Insp. 1. Mechanical Eng. 1. Mining Eng. 1. Pharmacy 2. English 2. Vet. Physiology 3. Mathematics 4. Drawing 4. Mechanic Arts	1. Civil Eng. 1. Forestry (2) 1. Geology 1. Mech. Eng. 1. Pharmacy 1. Therapeutics (1, 2) 2. Arch. History 2. English 2. Vet. Physiology 3. Mathematics 3. Surveying (2, 3) 4. Chemistry	1. Civil Eng. 1. Drawing (Arch.) 1. Entomology (1, 3) 1. Mech. Eng. 1. Milk Inspection (3) 1. Mining Eng. 1. Pharmacy 1. Spec. Pathology (1, 2) 2. Chemistry (Analyt.) 2. German 2. Vet. Medicine 3. An. Industry 3. Mathematics 4. Drawing 4. Mechanic Arts	1 Civil Eng. 1. Geology 1. Mech. Eng. 1. Meat Inspection 1. Pharmacy 2. English 2. Graphics 2. Vet. Medicine 3. An. Industry 3. Mathematics	1. Civil Eng. 1. Botany 1. Drawing (Arch.) 1. Dairy Farming (2) 1. Mech. Eng. 1. Mining Eng. 1. Pharmacy 1. Surgery 1. Theoretical Chem. 2. Military Tactics 3. Histology 3. Mathematics 4. Drawing 4. Mechanic Arts	1, 2, 3. Clinics 3, 4. Mechanic Arts Chemical Lab'y Elec. Lab'y Field Work (Civil and Mining Engineering)
P. M.—2-6	1. Structural Des. (1, 3) 1. Entomology (1, 3) 1. Forestry (2) 1. Mech. Lab'y 1. Toxicology (3) 1, 2, 3. Anatomy Lab'y 1, 2, 3. Chem. Lab'y 1, 2. Clinics (1, 2) 1, 2. Drawing (Arch.) 1, 2. Elec. Lab'y 1, 2. Field Work 1, 2. Machine Work 2. Botany (Agr., Ph.) 2. Pharmacy 3. Botanical Lab'y 3. Desc. Geometry 3. Mechanic Arts 3. Phys. Lab'y 4. Mechanic Arts 1. Civil Eng.	1. An. Ind. Lab'y (2) 1. Horticul. Lab'y 2. Agriculture (1, 3) 2. Botany (Agr.) (2) 2. Mineralogical Lab'y 1, 2, 3. Anatomy 1, 2. Clinics 1, 2. Drawing (Arch.) 1, 2. History 3. An. Ind. Lab'y (1, 2) 3. Desc. Geometry 3. Mech. Arts 4. Mech. Arts Elec. Lab'y Military Drill	1. Structural Des. (1, 3) 1. An. Ind. Lab'y 1. Mech. Lab'y 1. Toxicology (3) 1, 2, 3. Anatomy 1, 2, 3. Chem. Lab'y 1, 2. Clinics 1, 2. Drawing (Arch.) 1, 2. Field Work 1, 2. Machine Work 2. Botany (Agr.) (1, 3) 2. An. Ind. Lab'y (2) 2. Horticultural Lab'y 3. Botanical Lab'y 3. Desc. Geometry 3. Public Speaking 3. Mech. Arts 3. Phys. Lab'y 4. Mech. Arts Elec. Lab'y Work	1. Agriculture 1. Botany 1. Spec. & Bldg. Mtls. 1. Telephone Lab'y 1, 2, 3. Anatomy 1, 2. Clinics 1, 2. History 2. Elec. Lab'y 2. Horticultural Lab'y 2. Mineralogy Lab'y 3. Desc. Geometry 3. Mechanic Arts 4. Mechanic Arts Military Drill	1. Structural Des. (1, 3) 1. Horticultural Lab'y 1. Machine Design 1. Mech. Lab'y 1. Toxicology (3) 1, 2, 3. Anatomy 1, 2, 3. Chem. Lab'y 1, 2. Clinics 1, 2. Field Work 1, 2. Mach. Work. 2. Botanical Lab'y 2. Drawing (Arch.) 2. French 2. Graphic Statistics (2) 3. Public Speaking 3. Mechanic Arts 3. Phys. Lab'y 4. Mech. Arts Elec. Lab'y	

Chapel service daily at 7:45 A. M. *From 4:30 to 5:30 P. M.

Numbers prefixed denote classes—1 denotes senior; 2, junior, etc. Numbers affixed—(1), (2), (3), denote terms

NOTE.—The schedule for Botany, Organic Chemistry, Agricultural Chemistry and Surveying in the Sophomore Class will be announced later.

DESCRIPTION OF COURSES

ACADEMIC DEPARTMENTS

PHILOSOPHY AND POLITICAL ECONOMY.

PROFESSOR THACH.

The senior class pursue the study of intellectual science, twice a week through the year, and political economy twice a week during the second and third terms. The instruction in this department is by lectures in combination with text-books.

1. Intellectual science: Psychology defined. Value in relation to moral culture, education, and natural sciences. The relation of the soul to matter. The arguments of the materialist. Counter arguments. The faculties of the soul. The nature of consciousness. Sense perception. Fancy. Imagination. Nature of conception. Language. Judgment. Reasoning. Deduction. Induction, etc. Porter's Intellectual Science. *Two hours, entire session.*

2. Political economy: Value; production of wealth; land; labor; capital; division of labor; distribution of wealth; wages; trades unions; tariff; education, etc. Lectures by professor. Ely's Outlines of Economics. *Two hours, second and third terms.*

ENGLISH.

PROFESSOR WANNAMAKER.
PROFESSOR WEBB.
PROFESSOR RUTLAND.
INSTRUCTOR NICKERSON.

The mastery of one's native language is a prerequisite to high attainment in any profession. In a technological institute, where only a small number of students can pursue even brief courses in foreign languages, this mastery of the native speech becomes even more essential to future achievements than in classical colleges. This consideration alone would justify compulsory courses in English in technological institutions, but when we add to this the great cultural value of the study of language and literature, the wisdom of such compulsory courses must become obvious. English is required, therefore, in this institution throughout three years and the first term of the fourth year, and is required of all regular students. The study of English comprises drill in grammar and composition, a survey of the history of English and American literature, and intensive study of certain of the greatest periods and authors in English literature.

A thorough review of English grammar is rendered necessary by the inadequate preparation of many of the candidates for admission to the freshman class. The duration of this course depends upon the needs of the class.

Instruction in composition is designed to give the student proficiency in the use of English rather than acquaintance with the principles of formal rhetoric. Text-books are used for the guidance of the classes, but much of the matter contained in these books is of the nature of specimens for study and imitation, and the main purpose of the course is kept constantly clear to the student. Class standing depends primarily upon ability in the use of English.

Literature is studied at first hand. Manuals are mastered by the students, and in historical courses tabular outlines are made by the class for the purpose of impressing chronological and causal relationships upon the memory, but the greater part of the student's time is given to the study of selected masterpieces.

The requirements in English for admission are set forth on page 53. No student is classed as regular in any course leading to a degree until he has met these requirements.

The requirements as to thesis and as to proficiency in English for certificates and diplomas are set forth on pages 60 and 168.

The following courses are offered:

FRESHMAN CLASS.

101. (a) A review of the elements of English grammar: Text-book, Bartlett and McBain's English Grammar. *Two hours, first term.*

(b) A study of the formation of the language and of the meaning of words: Text-book, Anderson's Study of English Words. *Two hours, second and third terms.*

102. (a) Composition and rhetoric: The principles of correct and effective use of English are studied. The students are required to apply these principles in set themes once a week and in frequent class exercises. As often as practicable the instructor holds individual conferences with students to correct, assist, and stimulate them. Text-book to be announced. Reference book required, Woolley's Handbook of English Composition. *Three hours, first term.*

(b) American literature: A study of Bryant, Longfellow, Holmes, Whittier, Poe, Lowell, Lanier. Practice in composition is continued with this course by means of weekly themes dealing with subject matter furnished by the course. Text-book, Page's Chief American Poets. *Three hours, second and third terms.*

SOPHOMORE CLASS.

103. Composition and rhetoric: This course deals with the principles of exposition and argumentation. Students are required to submit weekly themes showing proficiency in these principles. The course is concluded with a lengthy argument based upon data gathered in the library. Text-book to be announced. Reference book required, Woolley's Handbook of Composition. *Three hours, first term.*

104. English Literature: This course consists in the interpretative study of selected poems and critical study of selected prose specimens illustrating the whole of English literature, together with the mastery of a concise history of the literature. Practice in composition is continued with this course by means of weekly themes dealing with subject matter furnished by the course. Text-books, Newcomer and Andrew's Twelve Centuries of English Poetry and Prose; Long's English Literature. *Three hours, second and third terms.*

105. Laboratory: This course is designed for those students in Latin who do not take courses 103 and 104. Lectures are given from time to time on the essential principles of composition, but the emphasis in the course is placed upon practice. Definite exercises are assigned for the application of the principles discussed. Through these exercises, through careful criticism and analysis of models of English prose, and through the instructor's criticism of written work and conferences with the students, the effort is made to form in the students the habit of writing with correctness and clearness. No text-book. Reference book required, Woolley's Handbook of English Composition. *Three hours, throughout the year.*

106. Public speaking: The sophomore class is heard weekly throughout the year in sections of ten, twice for an hour and a half in rehearsal and afterwards in the assembly hall before the student body.

JUNIOR CLASS.

107. In the junior and senior years students pursuing the general course form a section separate from the rest of the class. This section is required to do a greater amount of reading and of written work than the technical students. Each student pursuing a technical course may elect one of the three following courses, but the department reserves the right to omit

a course in case only a very small number elect it. The entire section of general-course students may elect one of the three courses.

(a) Nineteenth-century literature: The first half year will be devoted to the study of the leading prose writers of the last century, and the second half year to the leading poets. A great proportion of the time will be given to Carlyle, Ruskin, Arnold, Dickens, Thackeray, George Eliot, Tennyson and Browning. Text-books, a history of nineteenth-century literature, to be announced; Carlyle's Sartar Resartus, Heroes and Hero Worship; Hampshire's Selections from Ruskin, with Notes; Arnold's Essays, Literary and Critical; Dickens' David Copperfield, Tale of Two Cities, and Christmas Stories; Thackeray's Henry Esmond and Vanity Fair; Scott's Kenilworth; George Eliot's Mill on the Floss, and Romola; Page's British Poets of the Nineteenth Century. *Three hours throughout the year.*

(b) English literature from 1750 to 1825: During the first term the origin and growth of the romantic movement will be studied, and readings will be required from Gray, Goldsmith, Johnson, Burke, Cowper, Burns, Thomson and Collins. The origin of the novel will be briefly discussed, and one novel will be read from Fielding and Richardson each. The second and third terms will be devoted to a study of the romantic movement, and close attention will be given to Wordsworth, Coleridge, DeQuincey, Lamb, Byron, Shelley and Keats. Readings will be required from Scott, Jane Austen, Hazlitt and Landor. Textbooks, Phelps' Beginnings of the English Romantic Movement, Ward's English Poets, Vols. 3 and 4, Burke's Reflections on the French Revolution, Fielding's Tom Jones, Richardson's Clarissa Harlowe, DeQuincey's Confessions of an English Opium Eater, Lamb's Essays of Elia, Scott's Kenilworth, Jane Austen's Pride and Prejudice, Hazlitt's Lectures on the English Poets, Landor's Pericles and Hypatia. *Three hours, throughout the year.*

(c) The essay and the novel: The first term will be devoted to a study of the origin and development of the essay. Selected essays representing the seventeenth and eighteenth centuries will be read and much time will be given to the nineteenth-century essay. The second and third terms will be devoted to the study of the history of the novel. One novel will be read from each of the following authors: Richardson, Fielding, Scott, Jane Austen, Dickens, Thackeray, George Eliot. More recent tendencies in prose fiction will be discussed. Each student will be expected to report on one novel in addition to those read by the whole class. Text-books, Cross' Development of the English Novel; Richardson's Clarissa Harlowe (abridged); Fielding's Tom Jones; Scott's Waverly; Jane Austen's Pride and Prejudice; Dickens' Tale of Two Cities; Thackeray's Henry Esmond; George Eliot's Romola; select essays to be announced. *Three hours, throughout year.*

SENIOR CLASS.

Students pursuing the general course form a separate section. For technical students the following course is offered:

108. Shakespeare: The development of the English drama will be reviewed in some history of English literature, and the life of Shakespeare will be included in the matter of the final examination, but the classroom instruction will be devoted to three of the greatest plays of Shakespeare. Three additional plays will be read by the students, and written reports on these will be submitted. Text-books, any history of English literature; Dowden's Shakespeare Primer; the plays of Julius Cæsar, Macbeth, The Tempest, King Lear, Hamlet, and the Midsummer Night's Dream. *Two hours, first term.*

For general-course students the following course is offered:

109. English literature from 1585 to 1630: Required readings from Greene, Marlowe, Shakespeare, Milton and Bacon. Study of the principles of the drama. Optional readings from Jonson, Beaumont and Fletcher, Spenser, Herrick, Lyly, Browne, Taylor, Walton, Bunyan and others. Close study of two of Shakespeare's plays: Hamlet and As You Like It, or Macbeth and Winter's Tale, or Othello and Henry V. *Two hours, first term.*

110. Methods of teaching English. If a sufficient number of students apply to the head of the department, a course in methods of teaching English will be offered, the text-book and hours to be determined later.

GRADUATE STUDENTS.

The following courses have been given to graduate students:

(a) Shakespeare: Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV, Richard III, King John.

(b) Dryden's Poetical Works; Arnold's Dramatic Poesy; Yonge's Essay on Satire; Saintsbury's Dryden; Pope's Poetical Works; Pattison's Satire; Stephen's Pope; Gosse's From Shakespeare to Pope; and Eighteenth Century Literature.

(c) English literature of the eighteenth century: Addison, Pope, Gray, Goldsmith, Burns, Cowper and Burke.

(d) American literature: Longfellow, Lowell, Poe.

(e) The English essay: Bacon, Addison, Steele, Swift, Johnson, Goldsmith, Macaulay, DeQuincey, Lamb, Carlyle.

(f) Milton's Poetical Works: Life, Pattison, Brooke.

(g) Elizabethan, Jacobean and Caroline literature: Greene, Jonson, Marlowe, Webster, Beaumont and Fletcher, Browne, Herrick, Bunyan, and others.

(h) English literature, 1832-1894.

(i) Chaucer.

(j) During the year 1913-14 the course will deal with the development of English prose fiction.

THE READING CLUB.

To assist students in forming the habit of systematic reading of the best literature, a club will be organized by the department. Each year the works of some one or two authors will be read extensively and discussed at the meetings of the club. All students are eligible to membership. The club meets once a month at the home of Profesor Wannamaker.

HISTORY AND LATIN.

Professor Petrie.
ASSISTANT MOORE.
ASSISTANT THACH.
ASSISTANT OWSLEY.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements, and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Instruction is given by text-books, lectures, and class discussion, but a constant effort is made to stimulate to wider reading and research in the library. The following courses are offered:

FRESHMAN CLASS.

201. History of the United States: The course consists of lectures and text-book work, and is somewhat advanced. All

students who take it must have previously completed some school text-book on the history of the United States. Text-books: Hart's Formation of the Union; Wilson's Division and Reunion. *Two hours, first and second terms; three hours, third term.*

SOPHOMORE CLASS.

202. History of modern Europe: Required of all members of the sophomore class. Some previous knowledge of the subject is desirable, but not necessary. Text-book: Robinson and Beard's Development of Modern Europe. *Three hours, first and second terms.*

203. Ancient history: An extra course intended for those who are deficient on this subject. Text-book: Myers' General History, Part I. *Once a week, one term.*

204. A brief course in recent history: Not required of any students, but those who expect to take the general course may substitute it for botany or mechanics. Text-books: Robinson and Beard's Development of Modern Europe and current periodicals. *Three times a week, third term.*

SENIOR CLASS.

205. English constitutional history: A course for one year for members of the senior class. Text-book will be announced later.

JUNIOR AND SENIOR CLASSES.

206. Historical laboratory: An opportunity for advanced work in United States history for those students of the general course who elect it as laboratory work, and for any others who are properly qualified.

The chief object kept in view is training in historical research and in the formation of independent but careful opinions based on the original sources of information, as well as on the standard authorities. Emphasis is laid on the importance of securing proper material for investigation, and every incentive is given to the collection and use of new documents, papers, and letters illustrative of Southern and especially of Alabama history. The method of work is as follows: Informal lectures are given on important and suggestive points, as: The cause of the Revolution; the Constitutional Convention; the War of 1812; the Missouri Compromise; the Monroe Doctrine; Texas and Mexico; the Compromise of 1850; the Kansas Struggle; the Dred Scott Decision; Secession. After each lecture a general discussion follows, and topics connected with it are assigned to the students, with an outline of the points to be investigated. The final results are collected by each student according to his own judgment in his note-book, which is then passed in to the professor for correction and suggestion. Text-book: MacDonald's Select Statutes. *Six hours, entire session.*

International Law: A brief course is offered for those students who expect to enter the army or navy. *One hour a week.*

GRADUATE COURSE.

207. Graduate students are expected to take part in the junior and senior discussions, and will also meet with the professor for conference about their work. Each year some special field is taken for investigation and discussion. Those who take history as their major study are expected to devote a large part of their time to research upon some topic upon which they can consult the original sources of information.

208. Teachers' course: Conferences every other week with those students who expect to teach history.

LATIN.

The objects kept in view in this department are: An accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives; an appreciation of Latin literature and an intelligent conception of Roman history and civilization, both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation. English passages based on a familiar author or illustrative of special constructions are put in Latin, both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class, a course of reading in English is prescribed descriptive of his life, work, and times. The historical setting and the literary value of his writings are carefully discussed, and frequent comparisons are made with modern authors.

In the freshman and sophomore classes the study of the language is the chief point. In the higher classes a broader view is taken. The junior class makes a special study of Roman history and Roman historians. The senior class studies Roman poetry and Roman life.

In the senior class a brief pedagogical course is given during the third term for those who expect to be teachers of Latin. This includes work on the forms and syntax, and in Cæsar and Virgil.

The following courses are offered with the text-books named:

209. Freshman class: Exercises, Cicero, Sallust, or equivalent. Allen and Greenough's Latin Grammar. *Four hours, first and second terms; three hours, third term.*

210. Sophomore class: Livy. Allen and Greenough's Grammar, Bennett's Latin Composition. *Five hours, entire year.*

211. Junior class: Livy, Tacitus, grammar, Roman history, exercises. Allen and Greenough's Grammar, Botsford's History of Rome. *Three hours, entire year.*

212. Senior class: Horace, Plautus, Latin literature, grammar. Allen and Greenough's Grammar. *Three hours, entire year.*

213. Pedagogical course: During the spring term a pedagogical course is given in Latin. It is designed chiefly, but not exclusively, for members of the senior class. It includes a discussion of the methods of teaching forms and syntax, as well as concrete illustrations of the way to overcome the difficulties in Cæsar and Virgil.

MODERN LANGUAGES.

PROFESSOR WIATT.

The chief aim in this department is to give the student a thorough and accurate knowledge of the elementary principles of the subjects taught, and to enable him to read with facility the ordinary French and German at sight. To train the ear, acquire a correct pronunciation and some facility in speaking, all recitations are supplemented, as far as practicable, by oral exercises in the languages themselves.

FRENCH.

The following regular courses are given:

JUNIOR CLASS.

301. (a) A course covering the essentials of grammar and pronunciation to enable the student to begin the reading of simple French prose. This course continues through the first term, three hours a week being given to the study of grammar and one hour to pronunciation and conversation. *Four hours, first term.*

(b) The second term includes a course of reading in simple prose (2 hours a week), and the continuation of grammar with translations of English into French (1 hour a week). *Three hours, second term.*

(c) During the third term the reading of more advanced selections in prose and poetry is begun (2 hours a week); grammar and composition (1 hour a week); and pronunciation and conversation (1 hour a week). *Four hours, third term.*

SENIOR CLASS.

302. (a) A course in reading: Corneille and modern French plays (2 hours a week); laws of grammar and composition (1 hour a week); pronunciation and conversation (1 hour a week). *Four hours, first term.*

(b) The second term is given to the study of Racine, and the reading of modern French literature (2 hours a week), and to continued study of the structure and syntactical features of the language in connection with translations into French. *Four hours, second term.*

(c) The third term includes a study of Moliere (1 hour a week); the history of French Literature (1 hour a week); more advanced work in grammar and composition (1 hour a week), and pronunciation and conversation (1 hour a week). *Four hours, third term.*

303. Teachers' course: During the spring term the work of the senior class will be so modified or supplemented, as to include a short pedagogical course for students who expect to teach French. This will consist chiefly of elementary work in grammar and syntax and a study of the best methods of giving instruction in this subject. *Third term, senior year.*

GRADUATE STUDENTS.

304. Graduate course: Offered for students who wish to pursue the study of French beyond the scope to which a two-year-course necessarily limits them. In addition to the authors studied in the lecture room, a wide and extensive reading of literature is prescribed.

TEXT-BOOKS.

First Year: Aldrich and Foster's French Grammar, and Aldrich and Foster's Reader.

Second Year: Corneille, Racine, Moliere, selected modern French plays, Duval's Histoire de la Litterature Francaise, Fraser and Squair's French Grammar, French Composition.

GERMAN.

The following regular courses are given:

JUNIOR CLASS.

305. (a) A course embracing the fundamental principles of grammar and the essentials of pronunciation leading to the intelligent reading and translation of simple German texts (3 hours a week), and exercises in pronunciation and conversation (1 hour a week). *Four hours, first term.*

(b) In the second term the reading of simple prose is begun (2 hours a week), and grammar and composition continued (1 hour a week). *Three hours, second term.*

(c) Reading of more difficult selections of prose and poetry is begun and continued throughout the third term (2 hours a week). Grammar and composition continued (1 hour a week), and conversational exercises (1 hour a week). *Four hours, third term.*

SENIOR CLASS.

306. (a) A course of reading in modern German (2 hours a week); structure and syntax of the language with translations into German (1 hour a week); conversation (1 hour a week). *Four hours, first term.*

(b) Schiller (2 hours a week); History of German literature (1 hour a week); composition (1 hour a week). *Four hours, second term.*

(c) German lyrics and ballads (2 hours a week). German literature (1 hour a week), composition and conversation (1 hour a week). *Four hours, third term.*

307. A course for students from the scientific schools, including readings of various scientific subjects, selected to meet the requirements of the class (2 hours a week), grammar and composition (1 hour a week) and conversation (1 hour a week). *Four hours, entire session.*

308. Teachers' course. During the third term in the senior class of German, the course will be so modified, or supplemented, as to include a short pedagogical course for those students who expect to become teachers of this language. This will consist chiefly of elementary work in grammar and syntax and a study of the best methods of giving instruction in the subject.

GRADUATE STUDENTS.

309. Advanced course: For those students who wish to pursue the study of German beyond the scope to which a two-year course necessarily limits them. Here, in addition to the authors studied

in the lecture room, a wide and extensive reading of authors and literature is prescribed.

TEXT-BOOKS.

First Year: Ham and Leonard's German Grammar, Super's Reader.

Second Year: Schiller, Lessing, selected modern German plays, German lyrics, Bernhardt's Deutsche Litteraturgeschichte, Joynes-Meissner's German Grammar, Harris's German Composition.

MATHEMATICS.

PROFESSOR CRENSHAW.
PROFESSOR MESSICK.
ASSISTANT PROFESSOR SHI.
INSTRUCTOR PATRICK.
INSTRUCTOR STOKES.
INSTRUCTOR DONAHUE.

The courses of instruction offered in this department are designed to give the student that mental discipline and training in logic which will enable him to think and reason logically; as well as a thorough knowledge of the principles and formulas of pure mathematics and their practical applications in the engineering and other scientific professions.

The courses offered in the different classes in this department are as follows:

FRESHMAN CLASS.

401. Solid Geometry: *Five hours, first term.*
402. Advanced Algebra: *Five hours, second and third terms.*

SOPHOMORE CLASS.

403. Plane Trigonometry: *Five hours, first term.*
404. Analytic Geometry: *Five hours, second and third terms.*

JUNIOR CLASS.

405. Analytic Geometry: *Five hours, half year.*
406. Differential Calculus: *Five hours, half year.*
    [NOTE: Beginning with session 1914-15, the Junior class will study calculus five hours the entire year.]

SENIOR CLASS.

407. Differential and Integral Calculus: *Three hours, first and second terms.*

GRADUATE STUDENTS.

408. Differential Equations: *Two hours, entire year.*

409. Methods of teaching mathematics: The department offers a course designed for teachers of elementary mathematics, or for those who expect to make this their profession. The elementary branches of mathematics will be reviewed and methods of teaching briefly discussed, keeping constantly in view the co-ordination of the lower branches with the higher. The course will include also a brief *resume* of the history of the elementary subjects; a critical examination of the extant text-books; and finally, an outline of a course of study in advanced mathematics to be pursued by the teacher. *Hours to be arranged.*

410. Projective Geometry: This course which aims to present the elements of the subject, will be offered to seniors and graduate students in architecture and engineering and to those properly equipped who wish to pursue the subject of mathematics. *Hours to be arranged, third term.*

TEXT-BOOKS.

Wentworth's Geometry, Fine's College Algebra, Wentworth's Trigonometry, Tanner and Allen's Analytic Geometry, Granville's Calculus, Johnson's Differential Equations, Cohen's Differential Equations.

PHYSICS.

PROFESSOR SOUTHALL.
INSTRUCTOR THOMAS.

The complete course of physics extends over four years, and is designed to give, as far as possible, an adequate and correct idea of the method of physical science and to lay the foundation for subsequent advanced work if (as must often be the case, especially in an institution such as this) the student desires to pursue the subject further or intends to engage in any of the great engineering professions of which physics is so important a basis. The lectures are illustrated by experiments; the students are required to work numerous problems and exercises.

FRESHMAN CLASS.

501. This course is very elementary. The object in view is to make the student familiar with the fundamental principles of physics. (The text-book will be announced later.) *Three hours, first and second terms.*

SOPHOMORE CLASS.

502. This is a laboratory course, and deemed especially important for students of engineering, and of great advantage to such as intend to pursue the subsequent higher work in this department. The laboratory exercises are carefully selected, being designed to illustrate the fundamental methods and principles of physics, and, although the work is necessarily more or less elementary, at the same time such accuracy and precision as the conditions admit of are insisted upon, so that the student is expected to acquire a fairly correct idea of modern experimental investigation. The exercises consist of the fundamental measurements of length, mass, density, moduluses of elasticity, pendulum experiments, etc., together with a few more advanced experiments in connection with the similar properties of liquids and gases, and the general phenomena of heat and sound. The student is required to write a careful report of such experiments, entering the results of observation in tabular form, and plotting a curve wherever practicable; also describing the object, apparatus, and method, and noting sources of errors, etc. Great stress is laid upon this requirement, and reports are not accepted unless they indicate that the student has done his best in every way. *Two hours, entire year.*

503. Elementary mechanics: Lectures, text-book, problems and exercises. (Text-book will be announced later.) *Three hours, third term.*

JUNIOR CLASS.

504. This is a more advanced course in general physics required of all candidates for a degree. The only preparation needed is a good working knowledge of mathematics through plane trigonometry. The course includes a series of illustrated lectures on the principles of dynamics, as applied to solids, liquids, gases, sound, and heat, in the order named. Written exercises are required each week. (Text-book to be announced later.) *Three hours, entire session.*

SENIOR CLASS.

505. This course, although more advanced than the junior course, and occasionally employing the higher mathematics, is a continuation of the work of the previous year. It might be called a course in elementary mathematical physics, and the subjects varying from year to year, that are treated in the lectures are such branches of physics as kinematics and dynamics, thermodynamics, electricity and magnetism, geometrical and physical optics, etc. The student is encouraged to solve difficulties for him-

self, and to read the standard treatises and original memoirs on the various topics that come under discussion. *Two hours, first and second terms.*

506. Astronomy: A brief course of lectures in descriptive astronomy. *Two hours, third term.*

(The text-books in this class vary with the changing subjects, and will be announced by the professor each year.)

507. Teachers' course: In the spring term a course will be offered for those members of the senior class who expect to teach physics. Methods of teaching the theory will be discussed and practical training will be given in the use of the laboratory for school purposes.

GRADUATE STUDENTS.

508. Physics and mechanics: This course will be designed to meet the needs of the students who take it. It will include both theoretical and experimental work in more advanced mathematical physics, or in analytical mechanics.

MILITARY SCIENCE AND TACTICS.

Col. B. S. Patrick, *Commandant.*

Military science and tactics are required by law to be taught at this institution. The law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the school of the soldier, of the company, and of the battalion in close and extended order, in guard mounting, inspections, parades, reviews, etc.

Under section 1225, U. S. Revised Statutes, the college is provided with U. S. magazine rifle, calibre 30, model 1898, and accoutrements.

The following uniform of standard cadet gray cloth has been prescribed for dress: coat and trousers as worn for fatigue at West Point, with dark blue cadet cap. A neat and serviceable uniform can be obtained for fourteen dollars. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is divided into companies. The officers are selected for military efficiency, good conduct, and scholarship. The commissioned officers will be selected from either the senior or the junior class, and promotion will depend on merit and not wholly on seniority.

A band, composed of cadets, furnishes appropriate music at all reviews and parades, and on other special occasions.

A student who has once accepted an office cannot resign it except for reasons entirely satisfactory to the president and the commandant. The resignation of an office will usually not be considered without first placing all the circumstances to the case before his parent or guardian.

Candidates for appointment or promotion may be required to stand an examination. Moral fitness, including demerits, will be considered.

Each company is officered by one captain and two first lieutenants, one second lieutenant, and a proper number of non-commissioned officers. The officers and non-oommissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the president on nomination of the commandant.

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant-General of the U. S. Army, and the names of the three most distinguished in military science and tactics will be inserted in the U. S. Army Register, and published in general orders from headquarters of the army.

The theoretical course in military science and tactics is begun in the junior and continued through the senior year.

The following are the courses prescribed:

600. Military drill: Required of all freshmen, sophomores, and juniors not physically incapacitated to bear arms. *Three hours, entire year.*

JUNIOR CLASS.

601. Infantry drill regulations: *One hour, first and second terms.*

602. Firing regulations for small arms: *One hour, third term.*

SENIOR CLASS.

603. Security and information (Wagner): *One hour, half first term.*

604. Field service regulations: *One hour, half first term and the second term.*

605. Manual of guard duty: *One hour, third term.*

SPECIAL COURSES FOR TEACHERS.

The courses described here are practical courses in the methods of instruction and are designed especially for teachers in Alabama schools and for those students who expect to teach after leaving college. They are given under the direction of the various departments by instructors who have had extensive experience in teaching and who are familiar with the existing conditions in the schools in the state. While in a few of the courses the instruction consists mainly of the study of texts on methods and lectures and discussions on methods of teaching specific subjects, in most of them the subject matter as well as the method is given. If there is sufficient demand, any department of the college will offer courses which may be carried on without the formal attention of the professor, in which the reading work will be outlined and supplemented by conferences from time to time. The following courses are offered:

701. In English: This course is planned especially to suit the needs of those who are now teaching English in elementary or secondary schools and those who expect to become teachers of English. It will include discussions of the existing needs in Alabama schools, general instruction in methods of study and presentation of literature, and lectures on practical methods of teaching grammar and composition, together with actual work in this subject. It will also be the purpose of the course to examine various text-books available for instruction in English and to put the student in touch with such books as he will find useful in his work and in his own development. *Two hours, third term.* —PROFESSOR WANNAMAKER, PROFESSOR WEBB, PROFESSOR RUTLAND.

702. In History: For those who expect to teach history a conference is held once every two weeks. The chief purpose is to obtain a clear understanding of the practical difficulties that confront teachers of history and to suggest the best ways to meet them. The discussions deal with both American and European history.—PROFESSOR PETRIE.

703. In Latin: During the spring term a pedagogical course is given in Latin. It is designed chiefly, but not exclusively, for members of the senior class. It includes a discussion of methods of teaching forms and syntax, as well as concrete illustrations of the ways to overcome difficulties in Cæsar and Virgil.—PROFESSOR PETRIE.

704. In French and German: During the third term in the senior class of French and German, the courses will be so modi-

fied or supplemented, as to include a short pedagogical course for those students who expect to become teachers of these languages. This will consist chiefly of elementary work in grammar and syntax and a study of the best methods of giving instruction in these subjects. *Third term.*—PROFESSOR WIATT.

705. In Mathematics: The department of mathematics offers a course designed for teachers of elementary mathematics, or for those who expect to make this their profession. The elementary branches of mathematics will be reviewed with especial attention to those portions presenting unusual difficulties to beginners, or which deserve emphasis on account of their importance. Methods of teaching will be briefly discussed, and the course will keep constantly in view the co-ordination of the lower branches with the higher. It will include also a brief *resume* of the history of the elementary subjects; a critical examination of the extant text-books; and finally an outline of a course of study in advanced mathematics to be pursued by the teacher. *The hours will be arranged later.*—PROFESSOR CRENSHAW.

706. In Physics: In the spring term a course will be offered for those members of the senior class who expect to teach physics. Methods of teaching the theory will be discussed and practical training will be given in the use of the laboratory for school purposes.—PROFESSOR SOUTHALL.

707. In library methods: The course offered by the library will have for its object the training of teachers in the formation, care, and use of a school library. Elementary instruction in the principles of dictionary cataloguing and of the decimal classification will be given, followed by a detailed study of reference books, together with practical problems worked out in the library. In addition there will be lectures on library organization and equipment, the routine work of a small library, and the selection and ordering of books. *Hours to be arranged.*—MISS MARTIN.

708. In Manual Training: Courses in elementary wood work and iron work are offered. These courses will be adapted as far as possible to the individual needs of those taking the courses and in addition to the shop work will include lectures and conferences on the organization of courses and the equipment of shops for manual training. *Hours to be arranged.*—PROFESSOR WILMORE.

709. In Physical Geography: In the course in general geology will be found much that is especially applicable to physical geography. It takes up a study of subterranean and surface agencies both as to their destructive, and constructive processes.

The results of these processes are then taken up in a study of the topography of the surface of the earth under the following heads: The geographic cycle; land sculpture; topography as determined by faults and joints; adjustment of rivers; seacoasts; mountain ranges. *Two hours, first and second terms.*—Professor Brown.

710. In Drawing and Descriptive Geometry: A course in the methods of teaching drawing and descriptive geometry is given to those who wish to prepare for teaching these branches. This course includes advanced work in the form of problems, supplemented by frequent conferences with the instructor, a full bibliography of works on the subjects, and an extended course in reading. Those who desire to avail themselves of an opportunity to practice the teaching of the subjects, may be permitted to attend the meetings of the large classes in elementary work for the purpose of observing methods of teaching. Those who show sufficient preparation may be allowed to assist in tutoring delinquent students and those who enter conditioned. Special attention is given to the subject of drawing as taught in high school work.—Professor Fullan.

711. In Chemistry: In this course, students who have had the necessary preliminary work in chemistry will be afforded the opportunity of taking laboratory practice in experimental chemistry for lecture purposes and for the purpose of the practical study of methods of handling classes in experimental laboratory work. Advanced students can also take the course in the history of chemistry which is provided in the senior year of the course in chemistry and metallurgy. *Hours to be arranged.*—Professor Ross.

712. In Biology (in botany and zoology): This course embraces practical and detailed work in biology, including both laboratory practice and class work in the principles of botany and zoology as well as instruction in the methods of teaching these subjects. It is especially arranged for those who expect to teach botany and zoology in the public schools, and will be supplemented by independent reading and work assigned from time to time and by conferences with the instructor. *Hours will be arranged.*—Professor Caldwell.

713. In Agriculture: Methods of teaching agriculture. This is a course of lectures and laboratory and field exercises intended to meet the needs of those who expect to teach agriculture or nature study in the common schools and agriculture in the high schools. Special attention is given to plans for school gardens

and the selection of material for illustrating the principles of agriculture, and practice will be given in conducting a number of simple demonstrations. Frequent excursions will be made to the fields.

Teachers and those who are preparing to teach are advised to take as many of the courses in agriculture as their time permits. It is especially desirable that those intending to take the teachers' course shall have previously taken *Agriculture 203*, or its equivalent. Lectures and laboratory, *one hour each, third term.*—Professor Duggar.

714. In physiology and hygiene: The department of physiology and veterinary medicine can give the following course of instruction to prospective Alabama teachers:

(a) Structure of human body and animals.

(1) Study of cells, tissues, and organs.

(2) How to use the smaller animals in taking naked eye anatomy.

(b) Physiological actions of the different parts and products of the animal and the human body. This embodies:

(1) Functional tests.

(2) Chemico-physiological tests.

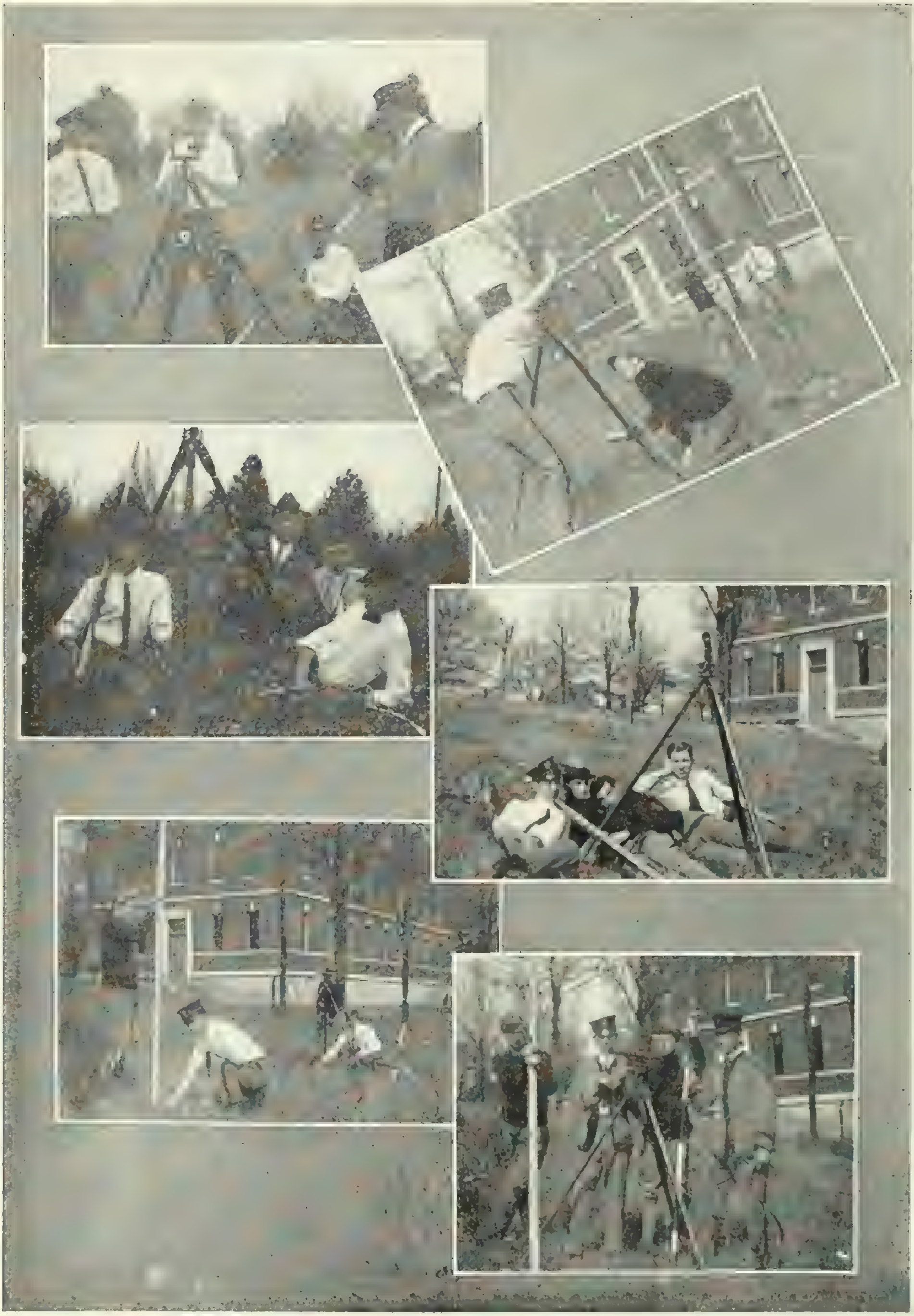
(3) Physico-physiological tests.

(c) Hygiene, embracing instruction in personal health problems.

(d) Sanitation, including health conditions of cities, homes, public buildings, farms, barns, dairies, etc.

(e) Care of animals on the farm and in the city.—Professor Cary.

715. In horticulture and school gardening: This course embraces instruction in nature study, the use of school gardens, and elementary landscape gardening. Though the course is largely practical in its nature, much attention is given to the methods of teaching elementary horticulture, the use of texts, and experiments suitable for elementary and high school grades. *Hours to be arranged.*—Professor Sandsten.



Civil Engineering

COLLEGE OF ENGINEERING AND MINES

CIVIL ENGINEERING.

Professor Mitcham.
ASSISTANT GRISSETT.
ASSISTANT RIDGELY.

SOPHOMORE YEAR.

101. Plane surveying and levelling: A short course for sophomores who are not required to take courses 102, 103, and 104. Instruction will be given in use, adjustment and care of instruments; determination of true meridian and magnetic declination; U. S. public land survey system; farm surveys by various methods; plotting and computing areas; dividing land; differential and profile levelling; terracing; drainage surveys. *Three hours lectures, second term, and two hours field practice, second and third terms.*

102. Plane surveying and levelling: A longer course for all engineering students of sophomore class. Instruction covers construction, adjustment, use and care of intruments; standardizing tapes, determination of true meridian and magnetic declination; U. S. public land survey system; methods of retracing old land lines; farm surveys by various methods; plotting and calculating areas; dividing lands; surveying and mapping existing roads and streets; laying out townsites and establishing permanent monuments for same; differential levelling; profile levelling; cross-section levelling; calculation of excavation and embankment; terracing; staking out and giving grades for sewers, ditches, and drains; staking out buildings, etc. *Three hours lectures and two hours field practice, first term.*

103. Topographic and hydrographic surveying: Required of students pursuing courses in civil or mining engineering. Intruction covers surveys made by pacing and use of hand level and pocket compass or alt-azimuth instrument; topographic surveys made with transit, chain, and level; railroad topography with hand level; triangulation; theory of stadia measurements; topographic surveys with transit and stadia; plane table surveys; topographic maps; hydrographic surveys, maps and charts. *Three hours theory and two hours practice, second term.*

104. Railroad surveying: Required of students pursuing courses in civil or mining engineering. Instruction covers preliminary surveys; theory of simple, reversed and compound curves; turnouts and crossings; the railroad spiral, and calculation of excavation and embankment. *Three hours theory and two hours practice, third term.*

105. Surveying between sophomore and junior years. This course is given in the summer camp immediately after commencement. The purpose of the course is to give the student uninterrupted practice in the solution of practical problems in surveying similar to those which he will meet early in his career as an engineer; and the course is in line with the policy of the Institute to combine theory and practice in all its branches of technical instruction. The work given includes retracing land lines of the U. S. public land surveys; farm surveys by compass, deflection angle traverse, and azimuth traverse; problems in division of land; topographic survey of a given area of land; triangulation; preliminary survey of a short line of railroad; differential levelling; profile levelling. Students are required to make field notes of the work done by the party to which they are assigned, and computations, plots, maps, and profiles connected therewith. Required of all students who are candidates for a degree in civil or mining engineering. *Sixty hours a week, four weeks.*

JUNIOR YEAR.

106. Railroad surveying: A course in field and practice covering problems in location to fit given ground, spirals being used wherever good practice requires; fixing grades with reference to economy in construction and operation; approximate estimates of quantities from profiles; cross sectioning and calculation of excavation and embankment; overhaul; borrow pits; planning and staking out bridges, trestles, and culverts. *Six hours, first term.*

107. Roads and pavements: A course of lectures and recitations covering economic principles involved in road improvement; analysis of resistance to traction; location, grades, and drainage of new roads; relocation and improvement of existing roads; construction and maintenance of earth, gravel, and macadam roads; bituminous materials in road construction; street plans of cities and towns; width and grade of streets; curbs and gutters; construction of various kinds of street pavements; comparative merits of various pavements; construction of sidewalks; street drainage. *Five hours, first term.*

108. Road materials laboratory: The study and testing of various materials used in the construction of roads and pavements. The purpose of the course is to allow the student an opportunity of becoming familiar with the physical properties, relative merits, and methods of testing the various materials rather than to have him perform exhaustive research work. *Three hours, second term.*

109. Road and street improvement: A practical field and office course in making surveys, plans, and estimates for road and street improvements. *Three hours, third term.*

110. Mechanics of materials: This course is intended to acquaint the student with the physical and mathematical ideas underlying the mechanics of materials and to prepare him for his future work in theory of structures and structural design. The discussions cover conditions of equilibrium; definition of stresses and strains; modulus of elasticity; stresses beyond the elastic limit; resilience; riveted joints; shafts; tension members; columns; beams; center of gravity; moment of inertia. *Five hours, second and third terms.*

111. Graphic statics: A course of lectures and drafting room exercises covering fundamental principles of equilibrium; composition and resolution of forces; the equilibrium polygon; graphical determination of stresses in trusses and framed structures; bending moments and shears in beams; center of gravity of given sections; moment of inertia. *Three hours, second term.*

112. Structural drafting: The purpose of this course is to acquaint the student with the details of structural steel work, to train him in the neat and accurate execution of drawings, and to teach him in a practical way to solve some of the simpler problems in structural mechanics. *Five hours, entire session.*

SENIOR YEAR.

113. Theory of structures: The purpose of this course is to teach the fundamental theories underlying the design of bridges, roofs, and other framed structures of metal and timber. The discussions cover determination of outer and inner forces acting on the structure; concentrated live load systems; design of beams, plate girders, simple trusses, bridge trusses with secondary web systems, lateral and portal bracing, transverse bents, viaduct towers, cantilever bridges, three-hinged arches. *Five hours, first term.*

114. Structural design: This is a drafting room course in the practice of bridge and structural design, and is the complement of course 113. Complete designs are worked out for a number of structures. *Nine hours, first and third terms.*

115. Railroad engineering: The discussions cover the inception, promotion, and organization of railroad projects; organization and construction; the duties of the engineer; alignment and grades; rails and rail fastenings; cross ties; ballast and roadbed; culverts; bridges, and minor structures; turnouts; side tracks

and yards; terminals; elevation of outer rail; signalling; the locomotive and its work; locomotive and grade problems; railroad expenditures; relation of operating expenses to number of trains; effect of rise and fall, distance, and curvature to train mile costs; railroad location, construction, and betterment surveys. *Three hours, first term.*

116. Theoretical hydraulics: The discussions cover fluid pressures; equilibrium of floating bodies; fundamental principles of hydro-mechanics; methods of measuring the flow of water; Pitot tube; Venturi meter; orifices; tubes; sluices; wiers; nozzles; fire hose; flow in open channels, sewers, conduits, etc.; flow in pipes; dynamic action of flowing water; impulse wheels; turbines of various types; centrifugal pumps. *Five hours, second term.*

117. Practical hydraulics: This course is the complement of course 116, and its purpose is to bring the student into close touch with practical hydraulics. The work includes the determination of coefficients of orifices, tubes, and nozzles; determining loss of head in pipes and fire hose; measurement of water by wiers and meters; testing meters and pumps; gauging streams with current meter; visits of inspection to hydro-electric power plants under construction and in operation and reports on same. *Three hours, third term.*

118. Concrete and masonry construction: Discussions cover mathematical theories underlying the design of reinforced concrete beams, columns, slabs and arches; cements, limes, and mortars; methods of mixing and placing plain and reinforced concrete; classification and properties of building stones; definition and construction of various classes of stone masonry; manufacture of brick; brickwork; stone and brick arches; retaining walls; piers and abutments; shallow foundations; coffer dams; crib foundations; pile foundations; pneumatic caissons; the freezing process; cylinder piers. *Three hours, second and third terms.*

119. Sanitary engineering: The discussions cover the history of sanitary science; sanitary measures necessary for the prevention of zymotic diseases; the engineer's part in the campaign for the prevention of disease; the sources of water supply, its collection, purification, and distribution; sewerage, and sewerage design; sewage disposal; construction of sewers; pumping of sewage; sewage treatment plant; sewage farms; collection and disposal of garbage and rubbish; street cleaning. *Five hours, third term.*

120. Thesis: Each candidate for a degree in civil engineering

Electrical Laboratories

is required to prepare a thesis upon some engineering subject which he may select. It must be the record of original investigation of some engineering subject or an original design of some engineering structure or project. The applicant for a degree shall file a written announcement of his subject with the professor of civil engineering not later than October 1st of his senior year; and the thesis shall be completed and submitted for approval not later than April 15th. During the first term the candidate shall devote not less than four hours a week to reading and collecting data for his thesis; and during the second term he shall devote not less than nine hours a week to work on his thesis. He shall submit on Monday morning of each week a written statement of the time he has devoted to thesis work during the preceding week.

GRADUATE STUDENTS.

121. Graduate engineering course: This course requires three hours a week to be devoted to recitations and five hours a week to practical work in field or drafting room, throughout the session. The subjects may be varied to fit the needs of the students taking the course, but will be chosen from the following: Reinforced concrete; bridge design; sewerage; specifications and contracts.

122. Thesis: Graduate students applying for the degree of civil engineer will be required to prepare and present a thesis, the regulations governing thesis work being the same as those prescribed for seniors.

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN.
PROFESSOR HILL.
INSTRUCTOR WOOTEN.

Courses of instruction offered:

JUNIOR CLASS.

201. Elementary theory of electricity and magnetism: A detailed study of the fundamental phenomena and laws of the subject. *Three hours, first term.*

202. Direct current machinery: Lectures and recitations on the principles of design, construction, installation, and operation of direct current generators and motors. This course treats in detail of the selection of machinery for given conditions, per-

formance guarantees, acceptance tests for heating, regulation, efficiencies, etc., parallel running, troubles and remedies, and repairs. A large number of carefully selected problems are assigned for solution and every effort is made to have the course cover not only the fundamental principles but also the broader engineering problems connected with the choice and use of this class of machinery. *Three hours, second term.*

203. Central station appliances and distribution for lighting and power service by direct currents: This course treats in detail of switch boards and appliances, calculation of circuits of various kinds, arc and incandescent lighting, metering, systems of charging for service, economics of generating plants. *Three hours, third term.*

204. Elementary theory of electricity and magnetism: For non-electrical engineering students. This course is similar to course 201, though not so detailed in treatment. *Two hours, first and second terms.*

204a. The construction and operation of both direct and alternating current machines; tests for efficiency, regulation and heating; the generation and distribution of electric power. In this course, it is intended to cover the application of electricity to the operation of machinery. For non-electrical students. *Two hours per week, third term.*

205. Electrical measurements and tests. For students in electrical engineering and mechanical engineering. The course consists of lectures and recitations upon the measurements of current, voltage resistance, capacities, magnetic measurements, stray power, brake tests, heat runs, and related subjects. *One hour, entire session.*

206. Laboratory work: For students in electrical engineering and mechanical engineering. The course consists of galvanometer work, resistance measurements of various kinds, magnetic measurements and various tests. *Four hours, first term.*

207. Laboratory work: For students in electrical engineering and mechanical engineering. The third term is devoted to the operation of direct current motors and dynamos, characteristics of direct current machinery, methods of adjusting, compounding, etc. *Four hours, second term.*

208. Laboratory work: For students in electrical engineering and mechanical engineering. Efficiency tests, location of troubles on machine and line, switch boards and appliances, and general experience in the operation of a direct current station, are given. *Four hours, third term.*

SENIOR CLASS.

210. Theory of alternating currents: Lectures, recitations, and problems upon the phenomena of alternating current circuits, inductances, etc. This cause is introductory to the subject of alternating current machinery, and in order to take it, students must have a fair working knowledge of differential and integral calculus and vector algebra. *Five hours, first term.*

211. Alternating current machinery: Lectures and recitations upon alternating current generators, calculation of alternator voltage regulation by various methods, parallel running, transformers, induction motors, single phase commutator motors, synchronous motors, rotaries, etc.; harmonic analysis of wave forms, the expression of the same in Fourier series and calculation of the current produced in various circuits.

The course is somewhat advanced and in order to take it satisfactorily students must have a good knowledge of the mathematical theory of alternating currents. *Five hours, second term.*

212. Transmission lines: Lectures and recitations upon line inductance and capacity, the application of hyperbolic functions to the calculation of the regulation of long transmission lines, effect of harmonics in E. M. F. waves, surges, etc. Stresses in conductors, line construction and related topics. *Five hours, third term.*

213. Laboratory work: Operation of alternating current machinery, determination of data for calculation of alternator regulation, direct determination of regulation, efficiency tests, transformer connections, transformer testing for efficiency and regulation, induction motor testing, circle diagram. Brake tests, single phase induction motors, synchronous motors, V-curves, rotaries, synchronizing, etc. The work during the third term consists chiefly in the determination of data for the student's thesis. *Four hours, entire session.*

214. Electric railway engineering: A detailed study of the subject of street and interurban electric railway service covering train resistance, grades, curves, line and track, car and power plant equipment, both direct and alternating currents, sub-station, single phase equipment, and related topics.

The course consists of recitations and lectures with constant reference to current numbers of various technical journals. *Two hours per week, second and third terms of the senior year.*

215. Telephone engineering: History and development of telephone types, designs of telephone parts, sub-station equipment, magneto and common battery switch boards, exchange equipment,

telephone power plants, over head and under ground circuits, protectors, coin collectors and meters, party lines, private branch exchanges, first and intercommunicating systems, trunking, and toll boards. *Two hours, second term.*

216. Telephone laboratory: Details of telephone constructions, association of parts, assembly of switchboard parts, storage batteries, tests for location of faults in cables and lines, capacity and insulation tests, details of common battery and magneto switch boards, trunking schemes, etc. *Two hours, first and second terms.*

217. Electrical engineering: For senior mechanical engineering students. Direct current motors and generators, street railways, circuits, alternating currents, and alternating current machinery. This course is less detailed than the courses for electrical engineering students, but aims to cover the field in a more generalized manner. *Three hours, first term.*

218. Laboratory work: For seniors in mechanical engineering. This course is given in connection with course 217, and gives practice in the operation and testing of electrical machinery of various kinds. *Four hours, first term.*

219. Contracts and specifications: For seniors in the courses of electrical engineering and mechanical engineering. Lectures and recitations upon engineering specifications and the elements of the laws of contracts. Considerable time is devoted to exercises in writing specifications covering machinery and engineering projects. These specifications are read to the class and the students are required to offer criticism on each set. *Two hours, third term.*

220. Power plant: For students taking the special course in applied electricity. The purpose is to familiarize the student with the operation of engines, pumps, generators, motors, switchboard appliances and boilers. All students in this course are expected to work under the power house engineer. *Four hours, entire session.*

MECHANICAL ENGINEERING.

PROFESSOR WILMORE.
INSTRUCTOR STOKES.
INSTRUCTOR MITCHELL.
INSTRUCTOR HIXON.

The following courses are offered in this department:

FRESHMAN CLASS.

301. Shop work—carpentry: The lessons include instruction in the nature and use of tools; instruction and practice in shop drawing; elementary work with the plane, saw, chisel; the construction of different kinds of joints, timber splices, cross joints, mortise and tenon, mitre and frame work, and dove tail work, comprising the different joints used in cabinet work, and examples of framing roof trusses. Students who have had previous experience in the use of tools or who show special proficiency, are given work of an advanced character. *Six hours, one term.*

302. Shop work—wood turning: The instruction includes the nature and use of the lathe and the tools, and the lessons comprise plain, straight turning, caliper work to different diameter and lengths, simple and compound curves, screw plates and chuck work, hollow aud spherical turning. *Six hours, one term.*

303. Shop work—pattern making: The course includes work in whole and split patterns in wood for solid and cored castings, and core boxes for producing the necessary cores. The characteristics of the different kinds of timber used for patterns are studied, and attention is called to allowances necessary for shrinkage and draft. The patterns are intended to be used by the students in their subsequent work in the foundry. *Six hours, one term.*

SOPHOMORE CLASS.

304. Shop work—forging: A text-book is used from which is learned something of the characteristics of the metals and the best methods of working them. The lessons are so arranged as to make the student familiar with the handling of the tools and the successive steps in working metals by hand. Exercises in drawing, upsetting and bending, cutting, punching, and welding by various methods, are given, together with a course in steel forging, including hardening, tempering, and case hardening. *Four hours, first term.*

305. Shop work—foundry: Required of all students except those taking agriculture and English laboratory. The work for the most part consists of small articles, such as light machine parts and the stock pieces used for the exercise work in the machine shop. A sufficient variety is introduced for the student to acquire a good general knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand and two part flasks, but some core work and more complicated work is introduced to illustrate the processes, as well as to furnish the castings for the advanced work in the machine shop. Instruction is given in operating the cupola, and from time to time lectures and recitations are held on the metallurgy and working of the metals used in the industrial arts. *Four hours, second and third terms.*

JUNIOR CLASS.

306. Elementary mechanics: Required of students in engineering courses. The fundamental laws of mechanical science are studied while special attention is given to the practical applications of these principles to engineering work. *Three hours, second term.*

307. Strength of materials: Required of students in the courses of mechanical engineering, electrical engineering, and mining engineering. The general properties and characteristics of cast iron, wrought iron, and steel are studied, and an elementary treatment of the strength of these materials in the forms of beams, girders, columns, and shafts is given. The text-book work is supplemented by lectures and many practical problems are worked out. *Three hours, third term.*

308. Practical mechanics: Required of students who take machine shop work. The instruction consists of recitations and lectures on general machine shop work. The construction, use, and limitations of the various machine tools, the forms of cutting tools and methods of grinding them, and the form and use of jigs and gauges, are studied, together with instruction in machine management, and time and cost keeping. *One hour, entire session.*

309. Shop work: Required of students in the courses of mechanical engineering and electrical engineering. This work is divided into two parts:

(a) A course of chipping and filing. The lessons comprise work on cast iron and wrought iron, and consist in chipping to line on flat and curved surfaces, key seating, filing, and finishing to line, surface filing, slotting, pin and screw filing, and surface finishing with scraper.

(b) A course in machine work. The materials worked on include cast iron, wrought iron, steel and brass. Exercises are given in turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling in the lathe and drill press, reaming, boring, screw cutting in lathe and with taps and dies. Practice is given in working the planer, shaper, and milling machine. In the last part of the year, some work in tool making is given, such as making taps, reamers, and milling cutters. Some sort of construction or repair work for the department is always on the shop floor and students who are well advanced in their work have opportunity to gain additional practice and experience by assisting with this. *Six hours, entire session.*

310. Shop work: Required of students in the course of mining engineering and elective for juniors in the course of civil engineering. The work includes courses (a) and (b) as described in course 309 just preceding, except the amount of work required is less in proportion to the time consumed.

All shop work is done from blue prints and blackboard sketches. For the preliminary exercise work, special instruction sheets are prepared and given out to each student with the stock for the exercises. These sheets explain in detail each step in the process of producing the exercise, and are intended to supplement the individual instruction of the instructor. In the construction work it is the purpose to select some simple machine and build two or more of them on the interchangeable system. Jigs and templates are built to accomplish this result as far as possible. A system of time keeping is in force in the shop. At the end of the week each student makes out his time card, describing the work he has done during the week, and giving the number of hours spent on each job. *Four hours, entire session.*

SENIOR CLASS.

311. Power plant engineering: Required of students in the courses of mechanical engineering and electrical engineering. The work of the course consists of a study of the practical applications of steam machinery. It is believed that a thorough knowledge of the apparatus in actual practical use is the best preparation a student can have for the study of the theory, and to that end, the different types of engines, boilers, pumps, condensers, and other auxiliary apparatus are taken up and studied in detail, and the advantages of each are discussed. Extensive files of manufacturers' catalogues are kept, and the technical papers and magazines in the library are freely used in order to keep in touch with the latest and best practice in engineering work. *Five hours, first term.*

312. Thermodynamics: Required of students in the courses of mechanical engineering and electrical engineering. The subject is first studied from the ideal standpoint, and later the applications are made to hot air engines, gas and gasoline engines, and steam engines, and also to air compressors and refrigerating machines. The temperature-entropy method of analysis is used in explaining heat transfers, and in general, graphical methods are used in preference to analytical ones when they can be made to serve the purpose equally well. In this course will be given instruction in indicator practice and the interpretation and working up of indicator diagrams from steam engines, gas engines, air compressors, and refrigerating machines. *Five hours, second and third terms.*

313. Heating and ventilating: The different methods of heating and ventilating buildings are treated. A study is made of the relative efficiency of hot water, steam, and warm air as mediums for heating different kinds of buildings, and special attention is given to the design and operations of healthful heating systems for residences. *Two hours, first term.*

314. Gas engines: This is a descriptive course, and gives attention to the construction and operations of gas engines and gas producers as used in modern power plants. The rapid development of the gas engine in recent years warrants a more extended treatment of this subject than can be given in the usual course of thermodynamics, and the above is offered as supplementary thereto. The subject will be presented by text-book, lectures, manufacturers' catalogues and drawings, and student reports on current articles of interest. *Two hours, second term.*

315. Mechanics of materials: The properties and characteristics of the materials of engineering construction are studied, and the development of the methods of calculating their strength under different conditions of stress is explained. Many problems involving the strength of beams, girders, columns, and shafts are worked out. *Three hours, first term.*

316. Materials of machines: Attention is given to the methods of manufacture and the uses of the materials which are employed in engineering construction. Special attention is given to the latest methods of manufacture of iron, steel, and cement, the work being presented by text-book, lecture, lantern slides and manufacturers' catalogues. *Three hours, third term.*

LABORATORIES.

JUNIOR CLASS.

317. Summer course: Required of juniors in the courses of mechanical engineering and electrical engineering. The work will consist in the adjustment and calibration of instruments used in engineering work, and the adjustment and operation of gas, gasoline, and steam engines. Tests will be made to determine the efficiency of mechanisms such as hoists, jack screws, gearing, belts, and other transmission devices, together with some work in valve setting and power measurement of steam engine. Complete and accurate written reports of each experiment are required. *Twenty hours per week for two weeks, beginning the week following commencement.*

SENIOR CLASS.

318. Laboratory: Required of students in mechanical engineering and electrical engineering. This work includes fuel analysis and heat determination, flue gas analysis and study of combustion, oil and lubricant testing, and valve setting and indicator card analysis. *Four hours, first term.*

319. Laboratory: Required of students in mechanical engineering and civil engineering and optional in electrical engineering. The course includes work in testing the strength of materials, as iron, steel, wood, and cement in tension, compression, and transverse loading, and the calibration of weirs, nozzles and meters, a study of the flow of water in pipes, and the testing of hydraulic motors and pumps. *Four hours, second term.*

320. Laboratory: Required of students in mechanical engineering and electrical engineering. The work includes tests of engines, boilers, pumps, gas and gasoline engines, complete power plants, and when opportunity offers, tests of commercial power plants. *Four hours, third term.*

GRADUATE STUDENTS.

321. Laboratory: This course is arranged to suit the work being carried by the students, and the hours are adjusted to suit their available time.

322. Steam turbines: The theory, design and structural details of the different types of modern steam turbines are studied, and complete designs are worked out. *Three hours, first term.*

323. Reinforced concrete construction: A study is made of the principles involved in reinforced concrete construction as applied to buildings in general, and particularly to buildings for power houses, shops, manufacturing buildings, and large bins for storing coal. *Three hours, second term.*

324. Power plant design and economics: The economics of power plant design, the relation of the different elements of a power plant to each other, and the conditions of maximum efficiency are studied. Plants are designed to give the highest efficiency under specified conditions, and actual plants are studied to discover, if possible, sources of additional economy in operation. *Three hours, third term.*

325. Thesis: Every applicant for a degree is required to prepare a thesis and hand it in not later than May 1st, preceding the commencement at which he expects to graduate. This thesis may consist of a design, a study of some engineering problem involving a series of tests, or a study involving the collection and analysis of data and material on some engineering subject, with a statement of definite conclusions derived therefrom.

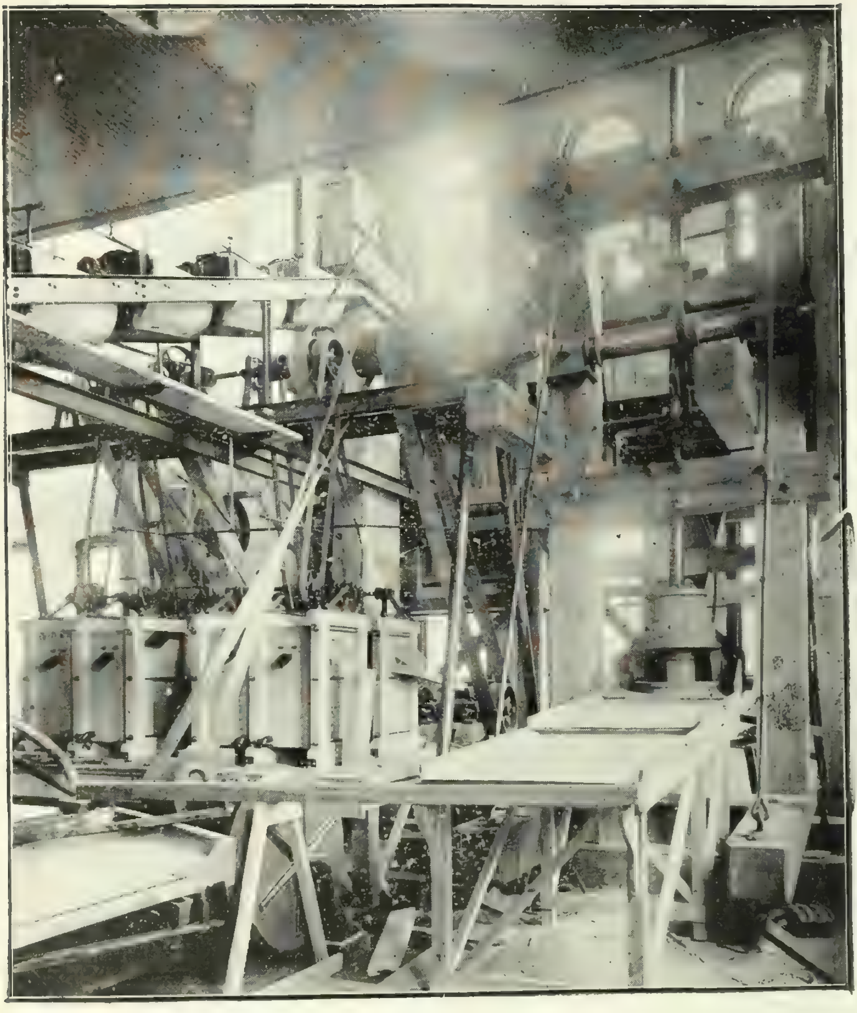
326. Manual training for teachers: Courses in elementary wood work and iron work are offered. These courses will be adapted as far as possible to the individual needs of those taking the courses, and in addition to the shop work will include lectures and conferences on the organization of courses and the equipment of shops for manual training. *Hours to be arranged.*

SPECIAL STUDENTS.

Special students who have the necessary preparation may be admitted to any of the classes in this department. For the benefit of students who, for any reason, are not able to remain in college to complete the full course, but who wish some training in drawing and shop practice, a special two-year course has been arranged. This course is particularly recommended to the young men who contemplate entering the mechanical trades either preceding or following the apprenticeship period. In many cases this work has been accepted as equivalent to a part of the apprenticeship period and the time of the latter shortened thereby. The drawing and mathematics are invaluable tools in any of the trades, and work in the different shops enables the apprentice to become familiar with the principles of the trades allied to his own.

The following courses are offered to students in the special Two-Year Course in Applied Electricity, and to any other students who may desire to take them.

327. Steam engines and boilers: An elementary descriptive course in which attention is called to the different types of engines and boilers, methods of setting, valve gears and valve setting, piping systems and auxiliary apparatus for power plants. *Three hours, first term.*



Mining Engineering
Ore Dressing Laboratory

328. Gas engines: A descriptive course in gas, gasoline, and oil engines; different cycles, methods of ignition, troubles and remedies. *Three hours, second term.*

329. Transmission of power: Shafting, pulleys, bearings, belting, gearing, aligning of shafting, calculation of pulley and gear sizes, power of belts, lubrication and lubricating systems. *Third term, three hours.*

For teachers who desire to secure preparation in the subjects pertaining to manual training, special shop courses are arranged. These will include such of the regular courses as are adapted to the requirements of the class, and suitable supplementary courses in wood and metal work. Lectures on the arrangement of courses and the equipment for instruction in manual training are offered.

MINING ENGINEERING AND GEOLOGY.

Professor Brown.
Assistant Kellum.

JUNIOR CLASS.

401. Crystallography: For students in the courses in civil engineering, mining engineering, and chemistry and metallurgy. A thorough study is made of the crystal systems with the aid of a full set of crystal models and natural crystals. Special emphasis is laid upon the more practical features which will be of service in further mineralogical work. *Four hours, first midterm.*

Text-book. Bayley's Elementary Crystallography.

402. Mineralogy: For juniors in the course of civil engineering, mining engineering and chemistry and metallurgy. Half of the time is devoted to blow-piping and the determination of a large number of unknown minerals. The second half of the course is given to a study of the physical characteristics of the minerals. A good type collection of minerals is kept in the laboratory for comparison. An effort is made to have the student become familiar with economically important ores and nonmetallic minerals and the common rock forming minerals so that he can identify them at sight by the application of a few simple tests. *Four hours, two and a half terms.*

Text-books: Butler's Handbook of Blow-pipe Analysis, and Butler's Handbook of Minerals.

403. General geology: For students in the courses of mining engineering, and chemistry and metallurgy, and for seniors in the courses of civil engineering, general course, and agriculture. The course covers dynamic geology, structural geology, geomorphology, and historical geology in the order named. The lectures and recitations are supplemented by laboratory instruction and geological excursions. *Two hours, entire session.*

Text-book: Chamberlin and Salisbury's College Geology.

404. Mine surveying: All general surveying as given by the civil engineering department previous to the junior year is required for this course. The work covers general surveying methods as applied to conditions prevailing at mining properties, both underground and at the surface. The student is required to work out practical problems that he will be likely to meet in actual practice. *Five hours, first half of first term.*

Text-books: Henck's Field Book, Coal and Metal Miner's Pocket Book, International Text-Books.

405. Coal mining: For those who have taken course 404 and its prerequisites. This course includes the following:

Examination of coal properties; drifts, slopes and shafts; methods of working; plans of mines; coal-cutting machinery; trackwork; haulage; mine ventilation; coal washing; coking in beehive ovens; by-product coking. *Five hours, second mid-term and third term.*

406. Junior drafting: The course includes free-hand lettering, mapping, detailed drawings to scale of various structures relating to mines, design of mine cars, design of ventilating fans. *Five hours, entire session.*

407. Summer course: The time will be divided between a study of gold mining and milling at Alexander City; coal mining, washing, and coking at Birmingham, and iron ore mining at Birmingham. Surveys and reports will be required. *Four weeks immediately following commencement between the junior and senior years.*

SENIOR CLASS.

408. Economic geology, non-metallic minerals: For students in the courses in mining engineering, and chemistry and metallurgy. The course is presented by lectures and recitations and includes the study of modes of occurrence, distribution, origin and uses of coal, petroleum, limestone, salines, gypsums, fertilizers, abrasives, minor non-metallic minerals, and mineral waters. *Two hours, first term.*

Text-book: Riess' Economic Geology of the United States. (Revised.)

409. Economic geology, metallic minerals: For students who have taken course 408. The work includes a study of the ores of iron, copper, lead, zinc, gold, silver, silver-lead, aluminum, manganese, mercury, and the minor metals. *Two hours, third term.*

Text-book: Riess' Economic Geology of the United States. (Revised.)

410. Mining: Modes of occurrence and origin of the various ores and economically valuable mineral deposits. Prospecting and examination of mineral properties, including boring by different methods. Methods of opening up mineral deposits, breaking ground, supporting excavations, developing and working coal and metalliferous deposits, haulage, hoisting, drainage, ventilation, lighting and provisions for ascent and descent. The last term is devoted to the design of mine structures, such as head frames (timber and steel), coal tipples, mine buildings. *Three hours, entire session.*

411. Drafting: Map work consisting of the plotting of notes taken on summer trip between junior and senior years; drafting accompanying design of mine structures; original work in connection with thesis. *Four hours, entire session.*

412. Laboratory course: For students in mining engineering and chemistry and metallurgy. The work includes crushing, sampling, concentration, stampmilling, amalgamation, and cyaniding. *Three hours, entire session.*

Text-books: Coal and Metal Miner's Pocket Book, and International Text-Books.

413. Methods of teaching physical geography: Especially adapted to the secondary schools of the State. In the course in general geology will be found much that is especially applicable to physical geography. It takes up a study of subterranean and surface agencies both as to their destructive and constructive processes. The result of these processes are then taken up in a study of the topography of the surface of the earth and under the following heads: The geographic cycle; land sculpture; topography as determined by faults and joints; adjustment of rivers; sea-coasts; mountain ranges. Students desiring extra work in this subject may arrange for a three-hour course. *Two hours a week, first and second terms.*

GRADUATE STUDENTS.

414. Graduate course: This course is offered to those who desire to pursue the subjects related to mining beyond the scope to which the two years' course limits them. The work will be arranged to meet the requirements of those desiring to take it.

ARCHITECTURE.

PROFESSOR HUDNUT.

The Department of Architecture was established in June, 1907, to comply with an increasing demand for instruction in this subject and to encourage students to take up a profession which hitherto could be pursued only after an expensive term of study in the North.

The course as planned leads to the degree of B. S. in architecture after a period of four years' study, of which the first is devoted to those preliminary courses required of freshmen in all departments, while the other three are devoted partly to those technical courses which form the foundation of an architect's training and partly to certain cultural subjects which, though less obviously necessary, are nevertheless essential.

The curriculum recognizes the fact that only a part of an architect's training can be obtained in class room and laboratories; a large part must be obtained by experience in the offices of practicing architects. The immediate aim of the school is not therefore to give the student a complete knowledge of all the materials and processes of building nor yet to give him complete mastery of all the subtleties of architectural drawing and design. The aim is rather to give him that wide sympathy with intellectual culture which ought to distinguish the successful architect, and at the same time to give him a clear understanding of the more fundamental technical principles of his profession. In addition the student will acquire as great a facility in drawing as can reasonably be expected after three years of daily practice.

The following courses are required of all students in this department:

SOPHOMORE CLASS.

501. Architectural drawing: A study of architectural elements (walls, doors, arches, columns, etc.), and of elementary architectural drawing. The orders are drawn and rendered and the student is given some practice in simple composition. Texts: Ware's American Vignola, parts I and II. *Six hours, entire session.*

511. Freehand drawing: Elementary exercises in delineation and chiaroscuro from plates, casts, and natural objects. *Two hours, entire session.*

521. Building materials and specifications: An elementary course in the preparation of working drawings, and the writing of specifications. Carpenter's work (framing, windows and

Seniors in Architecture

Telephone Laboratory

doors, inside finish, hardware, etc.), and mason's work (ordinary foundations, limes and cements, building stones, lathe and plastering, etc.). Text-books: Martin's "Details," Kidder's "Building Construction," Vols. I and II. *Three hours, entire session.*

541. Architectural shades and shadows: A study of ordinary shades and shadows in relation to architectural features (cornices, columns, domes, etc.). Practice in drawing. Texts: Curtis' "Graphics," McGoodwin's "Shades and Shadows." *Three hours, third term.*

JUNIOR CLASS.

502. Architectural drawing and design: A continuation of course 501. Problems are assigned in the planning and composition of buildings, beginning with simple structures and advancing to more complex ones. Drawing-room criticisms and occasional lectures. *Six hours, entire session.*

512. Freehand drawing: A continuation of course 511. Sketches from the cast in pencil and charcoal and in wash. Rendering in pen and ink. *Two hours, entire session.*

532. History of architecture: Technical and historical development of the architectural styles. Lectures (illustrated with the stereopticon) and quizzes. Essays on specified topics, illustrated with sketches and tracings. The first year's course includes the history of architecture in Egypt, Greece, and Rome. Text: Simpson's "A History of Architectural Development," Vol. I.

542. Perspective: Elementary exercises in freehand and mechanical perspective. Text: Curtis' "Graphics," Lawrence and Everett's "Perspective Drawing."

SENIOR CLASS.

503. Architectural drawing and design: A continuation of course 502. Written programs are given the student and he is allowed six weeks for their presentation in rendered drawings; and in addition there are included sketch problems occupying eight hours or less. Drawing-room criticisms and occasional lectures; assigned readings in Gaudet and other authorities. *Eight hours, first and second terms.*

503a. A thesis: Two months of careful work on a single building or group of buildings.

513. Freehand drawing: A continuation of course 512. Practice in water-color drawing from objects and from nature. *Two hours, first and second terms.*

533. History of architecture: A continuation of course 532. Lectures and quizzes; occasional essays illustrated with sketches. The Byzantine, Romanesque, Gothic, and Renaissance styles are studied. Text: Simpson's "A History of Architectural Development," Vols. II and III.

MECHANICAL DRAWING AND MACHINE DESIGN.

PROFESSOR FULLAN.
INSTRUCTOR GAUM.
INSTRUCTOR THOMAS.
ASSISTANT SMITH.

The following courses are offered in this department:

FRESHMAN CLASS.

601. Mechanical drawing: This course is not of a technical nature, is intended to be of general educational value to the student, and is required of students in all courses. The object of the course is to provide the student with the applications of geometry to drawing, and to train the hand and eye, with the mind. The work is principally that of linear drawing, including the most useful of the geometric constructions, arranged in progressive order. Free-hand lettering is given early in the course by means of lectures, and practice work in it is continued throughout the year. The one plane projections—axonometric and oblique which enable the student to represent an object on a single plane, are illustrated by means of suitable models, from which the students make their drawings. In this course accuracy, neatness and the use and care of the instruments are given special attention. *Three hours, entire session.*

SOPHOMORE CLASS.

602. Descriptive geometry: Required of all students preparing for engineering and architectural courses. The work is given by lectures, written recitations, and drafting room instruction. In this course, theory and practice are combined with the purpose of training the student in the graphical expression of ideas. The instruction includes problems relating to the points, straight line, and plane; tangents and normals; to cylindrical, conical, and warped surfaces; to sections, intersections, and developments; to shades, shadows, and perspective, and is intended to develop in the mind of the student a clear concept of magnitudes in space. The lectures and written recitations are to impart principles and to permit the instructor to meet the entire class, and, with diagrams and models, supplement the work of the text. The drawing, two hours per week, consists of plates of problems, which are selected from the text-book and other sources. *Four hours, entire session.*

603. Mechanical drawing: Like course 601, of the freshman class, this course is non-technical and is of general educational nature. The work is given concurrently with that of course 602, in descriptive geometry, and the applications of the methods of analysis given in descriptive geometry are stressed in each case where they may be applied. The subjects of the drawing plates, which are principally geometric, are required to be completely represented by the student, to enable one to read clearly what is intended to be shown. The work includes isometric projection, orthographic projection, sections, intersections, and developments, machine drawing, and free-hand lettering. As a check on the work in sections, intersections, and developments, and to more fully illustrate the subject, models from drawing paper of the surfaces are made by the student from the developments. This course is a prerequisite to work in the junior class in civil, electrical, mechanical, and mining engineering. *Three hours, entire session.*

JUNIOR CLASS.

604. Kinematics of machinery: Required in the courses of mechanical engineering and electrical engineering. Under this head machines are analyzed and their elementary combinations of mechanisms are studied. The communication of motion by gear wheels, belts, cams, screws, and link work, and the different ways of obtaining definite velocity ratios, and definite changes of velocity in machine parts, parallel motions, and quick return motions, as well as the designing of trains of mechanisms for various purposes, together with the theoretical form of teeth for gear wheels to transmit motion of these trains, are investigated under this subject. *Three hours, entire session.*

605. Graphic statics of mechanism: Required in course of mechanical engineering. The lectures provide a brief course in graphic statics, graphical statics of mechanism, and in the design of structures, including roof trusses for factory buildings, crane frames and girders, and watertank towers. The stresses in machines and structures are investigated by graphical methods, which are carefully checked in the beginning, by analytical proofs. This course includes the solution by graphical methods of such problems, before which analytical methods are comparatively impotent, as those which involve the friction losses in machines, and of the determination of the efficiency of mechanisms. The graphical method is also applied to dynamics by problems in the balancing of engine crankshafts working under specified conditions. The use of manufacturers' handbooks and drafting room practice are given special attention. *One hour, entire session.*

606. Machine design: Required in the courses of electrical engineering and mechanical engineering. Instruction is given in the design of fastenings and machine parts, and in the general methods of arranging views. This course includes the design of cams, gear tooth outlines, quick return motions, and link work combinations, which supplements course 604, in kinematics. Scale drawings of simple machines are made from dimensioned sketches, which each student makes for himself from an actual machine or model. Tracings and blue-prints are made from these drawings. All the instruction is intended to familiarize the students with modern drafting room methods. *Four hours, entire session.*

607. Machine design—lectures: Required in the courses of mechanical engineering and electrical engineering. These lectures are intended to cover the general instructions to the students, such as the selection of materials for different machine parts, the rules for proportion of parts to secure strength, symmetry, and cheapness of manufacture, and the best methods of making, recording and preserving the calculations incidental to the design of a complete machine. Much valuable engineering data of current nature in the form of notes are given as a supplement to the text-book. Illustrated lantern lectures on subjects related to the course are given at intervals during the year. *One hour, entire session.*

608. Machine design—drawing: Required in the course in mechanical engineering. This is a continuation of the junior course in machine design. Original problems involving the design of complete machines to work under specified conditions are assigned and the student develops the idea in the form of sketches. These are submitted to the instructor for criticism and are afterwards embodied in complete detail and assembly drawings. The calculations of each design are written up neatly and filed with the drawings. Special attention is given to the strength of the parts, to the harmonious and symmetrical appearance of the complete machine, and to the details as regards practical manufacture. *Six hours, entire session.*

609. Machine design—drawing: Required in the course in electrical engineering. The work given and the methods pursued are similar to those described in course 608, just preceding, but the amount of work required is reduced in proportion to the amount of time given to the subject. *Three hours, entire session.*

GRADUATE STUDENTS.

610. The work offered during the post-graduate year is an extension of that of the senior year. More of the theory of the subject is taught, more intricate machines are involved, and problems are given involving the design of a series of machines for manufacturing some specific article. The problems arising in the design of a line of machines of different sizes are also taken up, including the applications of graphical methods and the use of factors of enlargement and reduction. Special attention is given to the effect of current practice on the proportion of machine parts. Suitable text and reference books are used.

611. Methods of teaching drawing and descriptive geometry: A course in the methods of teaching drawing and descriptive geometry is given to those who wish to prepare for teaching these branches. This course includes advanced work in shape of problems, supplemented by frequent conferences with the instructor, a full bibliography of works on the subjects, and an extended course in reading.

Those who desire to avail themselves of an opportunity to practice the teaching of the subjects, may be permitted to attend the meetings of the large classes in elementary work for the purpose of observing methods of teaching.

Those who show sufficient preparation may be allowed to assist in tutoring delinquent students and those who enter conditioned.

Special attention is given to the subject of drawing as taught in high school work.

TEXT-BOOKS.

Thomson's Educational and Industrial Drawing Series, Cross' Mechanical Drawing, Jamieson's Isometric Drawing, Phillips and Millar's Essentials of Descriptive Geometry, French's Engineering Drawing, Schwamb and Merrill's Elements of Mechanism, Spooner's Machine Design, Smith and Marx's Machine Design, Spangler's Graphics.

COLLEGE OF AGRICULTURAL SCIENCES

CHEMISTRY.

PROFESSOR ROSS.
PROFESSOR HARE.
ASSISTANT PROFESSOR BRAGG.
ASSISTANT PROFESSOR WILLIAMSON.
ASSISTANT POWELL.
ASSISTANT MARSH.
ASSISTANT SCARBROUGH.

Instruction in this department embraces the following courses of lectures; systematic laboratory work is given in connection with each course for the practice of chemical analysis and chemical research:

FRESHMAN CLASS.

101. Course in general chemistry: This consists of a series of lectures including a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties, and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form. *Four hours, entire session.*

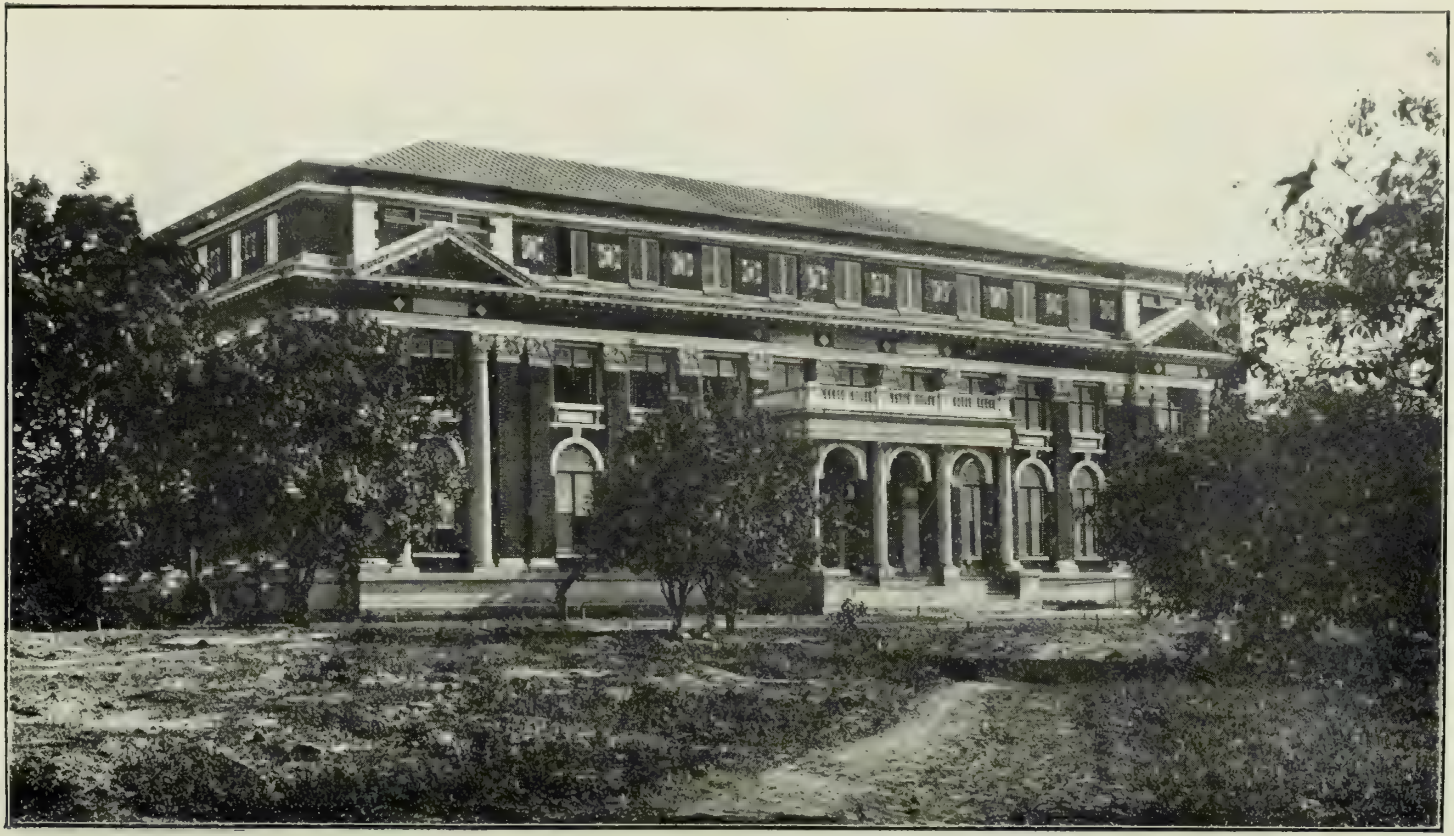
REFERENCE BOOKS.

Remsen's College Chemistry, Newth, Holleman, Roscoe and Schorlemmer, Chemical Journals.

SOPHOMORE CLASS.

103 (b). Organic chemistry: This course, though somewhat more condensed, is similar to 103 (a), with the exception that the latter portion of the course is devoted to a special study of the fats, carbohydrates and proteins with reference to their functions in the life processes of plants and animals. *Two hours throughout the first and second terms.*

105. Agricultural chemistry: This course consists of lectures on chemistry in its application to agriculture, and includes a



Comer Agricultural Hall

thorough discussion of the origin, composition, and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist. *Five hours, throughout the third term.*

REFERENCE BOOKS.

Snyder's Soils and Fertilizers, Snyder's Chemistry of Plant and Animal Life, Johnson's How Crops Grow, and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in Relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

JUNIOR CLASS.

102. Industrial chemistry: Lectures, including discussion in detail of the process and chemical principles involved in the most important applications of chemistry in the arts and manufactures to the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams. *Three hours, first and second terms, four hours, third term.*

REFERENCE BOOKS.

Thorp's Industrial Chemistry, Wagner's Chemical Technology; Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Sadtler's Industrial Organic Chemistry, Blount and Bloxam's Chemistry for Engineers and Manufacturers.

103. (a) Course in organic chemistry: Instruction in this subject embraces lectures and recitations upon the leading facts and principles of the chemistry of the carbon compounds, and includes a study of the methods of preparation of the more important compounds, their properties, and their structural and stereo-chemical relations. *Three hours, first and second terms. Two hours, third term.*

TEXT AND REFERENCE BOOKS.

Remsen's Organic Chemistry, Richter's Organic Chemistry, Gatterman's Practical Methods of Organic Chemistry.

SENIOR CLASS.

104. Course in metallurgy: This consists of lectures and recitations upon the more important metals, such as iron and steel, copper, lead, tin, silver, gold, mercury, zinc, etc. It includes a discussion of the physical and chemical properties of the metals and their alloys, the ores and their treatment, and the processes by which the metals are obtained from the ores, with chemical reactions involved.

106. Engineering chemistry: A course given during the senior year, especial attention being devoted to the study of the construction and equipment of the chemical plants devoted to the manufacture of the more important chemical products. *Two hours, first term.*

Excursions to various chemical and metallurgical plants during the course of the year will aid in familiarizing the student with the practical details of the operation of the leading industries.

107. Course in theoretical chemistry: The more modern phases of chemical theory are given special attention. *Two hours, second and third terms.*

108. Course in physical chemistry: Lectures and recitations. *Two hours, entire session.*

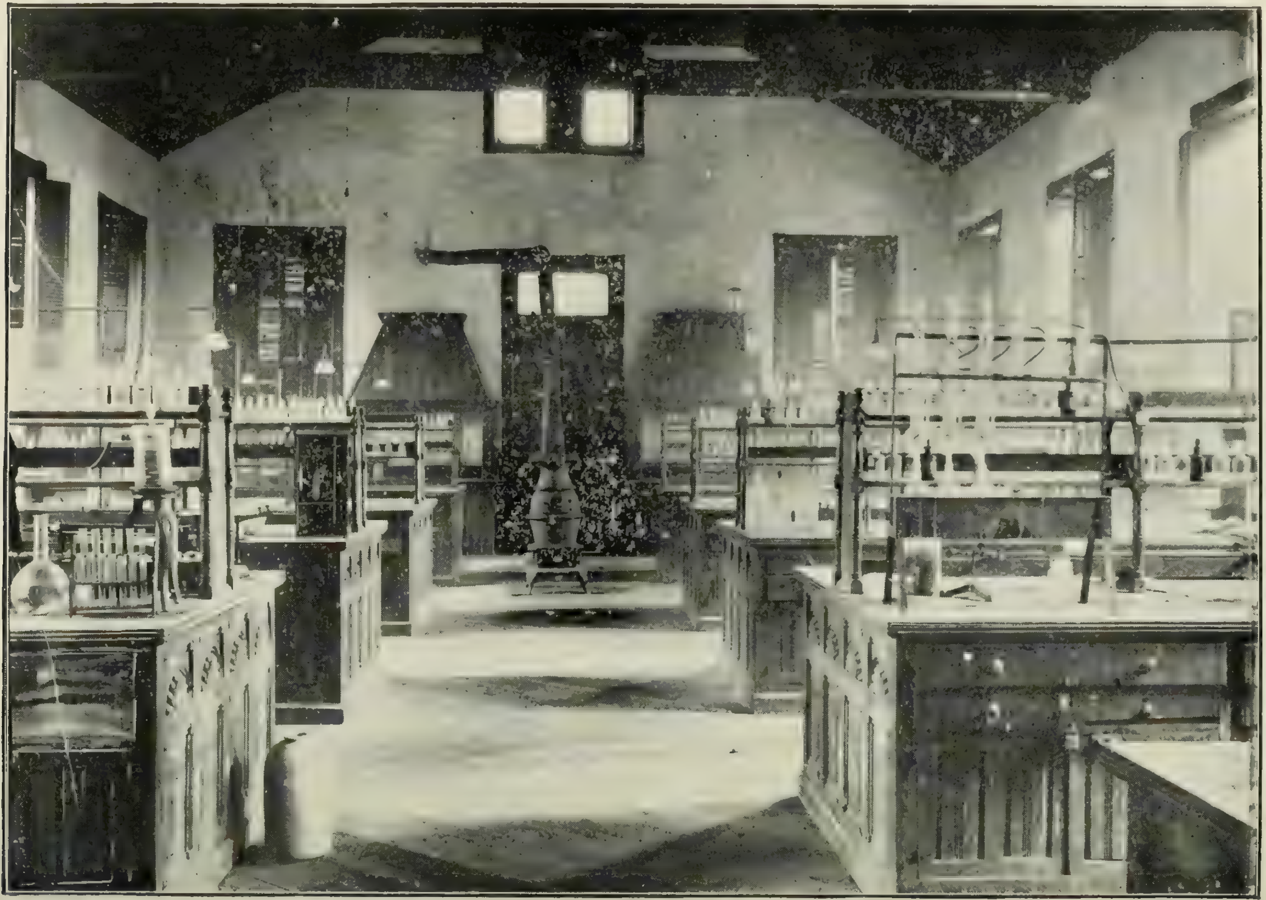
109. Methods of teaching chemistry in the secondary schools: In this course, students who have had the necessary preliminary work in chemistry will be afforded the opportunity of taking laboratory practice in experimental chemistry for lecture purposes and for the purpose of the practical study of methods of handling classes in experimental laboratory work. Advanced students can also take the course in the history of chemistry which is provided in the senior year of the course in chemistry and metallurgy. *Hours to be arranged.*

111. Course in advanced inorganic chemistry. *Two hours per week, entire session.*

LABORATORIES.

110. Course of systematic laboratory work: Courses of practical work in the laboratory are carried on in connection with all courses of lectures.

The laboratories, which are open from 9 A. M. to 5 P. M. during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation in qualitative



Interior Chemical Laboratory

and quantitative analysis, and in the methods of prosecuting chemical research. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles and the common reagents and apparatus used in the qualitative and quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from his contingent fee.

SOPHOMORE CLASS.

(a) All students in the courses in agriculture, chemistry and metallurgy, chemical engineering, and mining engineering are required to take practical laboratory work. Students in the course in pharmacy upon application, may be allowed to take this work.

The work of this course embraces the preparation of a number of the non-metallic elements and some of the more important inorganic compounds, the identification of metals by means of the blowpipe, and the qualitative separation and detection of the bases and acids.

JUNIOR CLASS.

110 (b) A course in quantitative analysis, embracing gravimetric and volumetric analysis and including the analysis of limestones, iron ores, etc.

SENIOR CLASS.

(c) A course in quantitative analysis, including analysis of fertilizers, soils, coals, ores, iron and steel, sugars and sugar products, feed stuffs, mineral waters, fluxes, slags, cinders, furnace gases, etc. The nature of the work is varied somewhat to suit the individual object of the student.

(d) The laboratory course provided for students in the course in mining engineering embraces work in quantitative analysis, including assaying. In the latter portion of the course, especial attention is given to metallurgical analysis and the fire assay of ores of gold, silver, and other important metals. *Eight hours, entire session.*

(e) In the courses in pharmacy and veterinary science, instruction in urine analysis and in toxicology and toxical analysis is given during the last term.

(f) In the junior year, a laboratory course in organic chemistry is provided for students in the course in chemical engineering throughout the entire year, and for students in the course in chemistry and metallurgy during the third term.

The short course includes systematic laboratory work in organic preparations, while the longer course embraces work in organic analysis, as well as in preparations.

112. In addition to the laboratory work above described it is designed to give a short course of laboratory work in industrial chemistry, in which the student will apply upon a small scale the principles involved in the processes of some of the more important chemical industries.

Students completing the above courses are afforded ample facilities for advanced work along special lines.

AGRICULTURE.

PROFESSOR DUGGAR.

ASSISTANT PROFESSOR FUNCHESS.

The regular agricultural course extends through four years and is intended to prepare those who complete it to become successful farmers, farm superintendents, and agricultural scientists in the various divisions of agricultural work in the U. S. Department of Agriculture and the numerous agricultural colleges and experiment stations. The studies in the regular agricultural course are so arranged that a student may obtain a thorough education while acquiring the technical training necessary to the most successful management of farming operations and of agricultural investigation or teaching. No foreign language is required for graduation in this course, but those who expect to engage in the scientific work of the U. S. Department of Agriculture or of the agricultural colleges and experiment stations, have the opportunity to study Latin, French, and German, or any one or two of these.

For the benefit of those who are unable to spend four years at college and who desire to prepare for the management of a farm, a short or two-year course in agriculture is provided. In this the student devotes his entire time to those studies having a direct bearing on his future occupation.

The following courses of instruction are offered:

FRESHMAN CLASS.

201. Introduction to agriculture: This is a short course of lectures, dealing with some of the simplest phases of agriculture. *Two hours, half third term.*

SOPHOMORE CLASS.

202. Principles of agriculture: Lectures, recitations, and laboratory practice dealing with the soil and the conditions necessary to the growth of crop plants. Methods of preparing and cultivating the soil are considered. *Four hours, second term.*

203. The small grains: Lectures, recitations, and field practice on wheat, oats, rye, and barley. These plants are treated both as grain crops and as forage plants. *Two hours lectures, two hours laboratory, third term.*

JUNIOR CLASS.

204. Corn: Lectures, recitations, and field practice on the cultivation, judging and improvement of corn. The student assists in harvesting certain experiments, becomes acquainted with a number of the best varieties, learns to select the best ears and the best plants, and notes the results of experiments in improving or breeding corn. *Two hours lectures, two hours laboratory, first term.*

205. Leguminous forage plants and soil improvement: Lectures, recitations, and field practice on this most important group of forage plants, including cowpeas, soy-beans, alfalfa, the clovers, vetches, etc. These plants are treated both with reference to their use as forage plants and as means of improving the soil. *Two hours lectures, two hours laboratory, third term.*

SENIOR CLASS.

206. Cotton: Lectures, recitations, and field practice in identifying and comparing a large number of varieties growing on the experiment station farm; judging individual cotton plants, and lectures on the cultivation, fertilization, and improvement of cotton. The collection of varieties growing on the experiment station farm usually numbers between fifty and one hundred varieties, and all of these are available for students' use. *Two hours lectures, two hours laboratory, first term.*

207. Cotton classing: This course of laboratory work consists of practice in classing the commercial grades of cotton by comparing great numbers of samples procured from the offices of cotton buyers with a nearly complete set of type samples owned by this department. A part of this practice will be under the supervision of experienced cotton buyers. *Two hours lectures, two hours laboratory, second term.*

208. Farm management: A course of lectures and practice dealing largely with rotation of crops, cost of producing different crops, systems of farming, selection of a farm, and plans for the best use of the farm or soil in which each student is most interested. This course is intended to give the student an opportunity to bring to bear on practical problems the information acquired from preceding courses of instruction in agriculture and related subjects. *Two hours lectures, two hours laboratory, third term.*

209. Investigation as a basis for a thesis: After a month spent in special reading under the direction of the professor of agriculture with a view to the selection of a subject for a thesis, the student will perform some agricultural experiment in crop production, soil treatment, or in testing farm machinery. Suitable facilities for such thesis work are provided in the fields and agricultural laboratories. In addition to conducting an original experiment the student will review the literature of agriculture to ascertain the results of similar or related experiments. It is expected that the results of some of these experiments will be worthy of publication. *Entire session.*

211. Soils and soils laboratory: Recitations intended to acquaint the student with the physical properties of soils, with the principal soils of Alabama, and especially those of the region from which each student comes. Instruction in this course will be given with a view to fitting a student to engage in the soil survey work of the U. S. Department of Agriculture, as well as to prepare him for the rational management of the soil of the farm. *Five hours, entire session.*

212. Special crops: A course of lectures dealing with sugar cane, tobacco, rice, broom-corn, and other southern crops not treated in other courses. *Two hours, second term.*

213. Methods of teaching agriculture: This is a course of lectures and laboratory and field exercises intended to meet the needs of those who expect to teach agriculture or nature study in the common schools and agriculture in the high schools. Special attention is given to the selection of material for illustrating the principles of agriculture, and practice will be given in conducting a number of simple demonstrations. Frequent excursions are made in the fields. *Two hours, third term.*

Post graduate courses in crop production, agricultural experimentation and teaching, and farm management are offered. The exact nature of the subject will depend upon the special requirements of the student.

Students taking a four-year course in agriculture receive instruction in the various branches of animal industry and horticulture, as well as in the natural sciences bearing on agriculture.

BOTANY.

PROFESSOR CALDWELL.
ASSISTANT PROFESSOR RIDGWAY.

The courses offered by the Department of Botany are designed to meet the needs of three differing groups of students: those desiring to secure some general acquaintance with the elementary principles and facts of a biological science as part of a cultural education; those desiring a thorough and detailed presentation of certain aspects of the subject as a prerequisite to entrance upon the study of some phase of applied botany such as horticulture or agronomy; those seeking the fullest possible collegiate training in the subject as a preparation for teaching or for advanced work in botany.

SOPHOMORE CLASS.

301. Plant morphology: This course is planned to meet the needs of all three classes of students just named. It furnishes a broad general introduction to the elements of the science, supplying the cultural information desired by the non-specialist student and at the same time furnishing to others a foundation upon which the more advanced courses are based. The first half of the year is devoted to the general morphology of the flowering plants. The topics upon which especial stress is laid throughout the course are vascular anatomy, the histological elements, recognition by chemical and microchemical methods of the commoner stored food-substances, and the principles of classification. Secondary attention will be given to elementary physiological facts in so far as these are necessary to comprehension of anatomical structure, but the chief end of the course is to convey a knowledge of the general anatomy and histology of Phanerogams. The second half of the year is devoted to the general morphology of selected representatives of the Cryptogams. The evolutionary relationships of the great plant groups will be outlined in the lectures and illustrated by the study of selected types in the laboratory. Especial stress will be laid upon the life-histories and biological relationships of those forms which are of greatest economic importance, hence a considerable portion of the time will be given to the fungi. *Two hours lectures and four hours laboratory, entire session.*

JUNIOR CLASS.

302. General bacteriology: This course is designed to supply to students contemplating specialization in animal industry or in

some phase of applied botany as horticulture, forestry, or agronomy, such an introduction to the principles of bacteriology as may furnish a basis for study of the special problems to be encountered in these lines of work. After a brief introductory discussion of the general morphology and physiology of the bacteria, the biological relations of the specialized groups will be taken up. The bacteriology of fermentation and putrefaction, the nitrogen-fixing and sulfur bacteria, the application of bacterially produced processes in the industries, and the bacterial diseases of plants will be dealt with in such detail as time permits. The forms pathogenic for man and for animals will not be considered except in an incidental way. Course 108 of the Department of Veterinary Medicine and Surgery furnishes instruction covering the pathogenic forms. *Two hours lectures, four hours laboratory, first term.*

303. Plant physiology: The subject matter of this course falls naturally into two parts, which are designated as *a* and *b*.

303a. Plant physics: This course deals primarily with the physical relations of the plant and with the physical forces concerned in plant processes. The subjects covered will be: The plant cell as an osmotic apparatus, the physical principles concerned in the absorption of water, the physics of transfer of solutes through protoplasmic membranes; the physiology of the root system, physical features of the soil in their relations to extent and distribution of roots; the water-content of the soil in relation to plants, physical factors of the soil in relation to water-holding power, physiologically significant quantities of water in soils, plant forces concerned in removal of water from the soil; mineral nutrients of the soil in relation to plants, historical development of the humus and the mineral nutrient theories of soil fertility, methods of study of the soil solution and significance of the results; absorption by soils, its bearings upon studies of the mineral requirements of plants; the theory of antagonism, the soil solution as a balanced solution; acid and alkaline soils, causes and practical methods of dealing with these conditions; toxic plant by-products in relation to soil infertility, biological basis for the toxin theory, its present status. The problems of energy exchange in plants; the physics of carbon dioxide absorption, the limiting factors upon photosynthesis, the energy expended in photosynthesis. Transpiration as a physical exchange with the surroundings, internal and external regulation of transpiration, thermal emissivity. The physics of movements of water in plants. *Two hours lectures, four hours laboratory, second term.*

303b. Plant chemics: This course considers the chemical phenomena occurring in plants, and will cover the following topics: The chief food substances of plants; the classification, composition and inter-relationships of the carbohydrates and the glucosides; the composition, relationships and biological importance of the plant fats, synthesis of fats in the plant; the physical properties, chemical composition, and products of hydrolysis of proteins, synthesis and transformations of proteins in plants; distinctive characters and classification of enzymes; the process and products of photosynthesis, conditions affecting rate of photosynthesis, the elaboration, translocation and storage of the products of photosynthesis. Respiration, oxidations for energy release, aerobic and anaerobic respiration; the mechanics of respiration and fermentation, the processes and the products. A brief consideration of the effect of external factors on growth and reproduction. Variation and heredity. *Three hours lectures, six hours laboratory, third term.*

SENIOR YEAR.

304. Plant pathology: The first nine or ten lectures will deal in outline fashion with the morphology, distinguishing characters, and methods of identification of those orders of fungi which are concerned in the production of the economically important plant diseases. Representatives of the more important pathogenic orders will be studied in the laboratory and to some extent in the field. The second sub-division of the course will be concerned with the relations of parasite to host, with a discussion in detail of a few examples of each of the categories of plant disease-parasitism immediately destructive to the tissues and to the life of the host; symbiosis terminated by destruction of the host at the reproductive period; invasions which do not involve destruction of living tissues—to the end that the student may acquire some degree of ability to make diagnoses of plant disease. The third portion of the course will deal with the methods of control of plant diseases. *Two hours lectures, four hours laboratory, first term.*

305. Plant histology: This course covers a rather broader field than the title would imply, as its purpose is to furnish to students planning to become teachers or advanced students of botany, such familiarity with the collection, preservation, and preparation of the materials ordinarily used in introductory botany as will enable the student to collect and prepare materials for study or to do intelligent and effective teaching. The technique of the more widely used methods of preserving, sectioning, and staining will

be taught, and the student will be directed in the collection and preparation of a representative teaching collection, including permanent microscopic preparations of representative forms ranging from the lower Algae through the flowering plants. Such materials become the property of the student, who will pay actual cost of reagents, glassware, and breakage. The lectures will give consideration not only to general histological technique, but also to the choice and methods of presentation of illustrative material in elementary courses in the subject. *Two hours lectures, four hours laboratory, second term.*

306. Taxonomic botany: This course is intended to meet the needs of students desiring to acquire some acquaintance with the flora of the region. The work demands some such knowledge of the general morphology of the flowering plants as is supplied by course 301 or its equivalent. The student will be instructed in the use of keys and manuals, and the lectures will deal with the classificatory characters of the more important plant families. The laboratory work will be to a considerable extent adapted to the especial needs of the student, so that those desiring to pay particular attention to special groups, as an adjunct to work in horticulture or agronomy, will find opportunity to do so. *Two hours lectures, four hours laboratory or field, third term.*

GRADUATE COURSE.

The department offers to properly prepared students opportunity for advanced work in botany, particularly in plant physiology and pathology. Students planning to do graduate work should consult with the head of the department as early in the course as possible, preferably at the beginning of the junior year, in order that proper choice of electives may be made. The general requirements for graduate work in the department are: the satisfactory completion of the undergraduate courses in botany, together with the required courses in organic and agricultural chemistry, a course in physiological chemistry (Pharmacy 405f), courses in plant breeding and forestry (Horticulture 609 and 610), and a fair reading knowledge of German and French. By special arrangement with the department head, a student may begin graduate work without having fully met these requirements, with the understanding that they are to be fully met prior to serious entrance upon his work in the department and in addition to the work in botany required for the Master's degree.

Interior Pharmaceutical Laboratory

PHARMACEUTICAL CHEMISTRY, PHARMACY, PHARMACOGNOSY AND PRESCRIPTION WORK.

PROFESSOR MILLER.
ASSISTANT ESKEW
ASSISTANT MOSELEY

JUNIOR CLASS.

401. (a) Pharmacy: The different systems of weights and measures. Specific gravity. Pharmaceutical problems. The fundamental operations in pharmacy. Apparatus used in pharmaceutical processes. Discussions of all classes of pharmaceutical preparations. *Class work, three hours, entire session.*

(b) Laboratory: Preparation of official and non-official galenicals. *Six hours, entire session.*

402. Pharmacognosy: All official vegetable drugs studied with aid of simple and compound microscope. *Class work with laboratory work, three hours, entire session.*

SENIOR CLASS.

403. (a) Pharmacy: Official and non-official pharmaceutical chemicals, inorganic and organic, including more important newer remedies. *Class work, five hours, entire session.*

(b) Laboratory: Preparation of official and non-official pharmaceuticals, inorganic and organic chemicals. Pharmaceutical testing by pharmacopœial methods. Drug assaying. Practical exercises in the identification of pharmaceutical preparations and chemicals. *Fifteen hours, entire session.*

404. Art of dispensing: The prescription. The study of several hundred original prescriptions from drug-store files. Incompatibilities. Doses. *Three hours, entire session.*

404-a. Commercial pharmacy. *One hour, entire session.*

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than 200 drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, origin, habitat, constituents, medicinal action and dose.

405. The work of the third year in the special course in pharmacy may be elected from the following courses:

(a) An advanced course in the manufacture of galenicals and organic and inorganic chemicals used in medicine.

(b) A course in the testing of drugs and medicinal chemicals for impurities by pharmacopœial methods.

(c) A course in pharmaceutical assaying, including the assay of alkaloidal drugs, glucosidal drugs, resinous drugs, the valuation of fixed and volatile oils, pepsin, diatase, etc.

(d) A course in water analysis.

(e) A course in milk and butter analysis.

(f) A course in physiological chemistry.

(g) A course in organic preparations.

(h) An advanced course in toxicological analysis.

(i) The presentation of a satisfactory thesis.

Any one who completes the work of the three-year special course in such a manner as to prove himself a competent analyst will be granted the degree of Pharmaceutical Chemist.

The pharmacy department of this institution is a member in good standing of the American Conference of Pharmaceutical Faculties.

TEXT AND REFERENCE BOOKS.

Arny's Principles of Pharmacy, Stevens' Pharmacy and Dispensing, Kræmer's Botany and Pharmacognosy, Caspari's Treatise on Pharmacy, Sayre's Organic Materia Medica and Pharmacognosy, Culbreth's Materia Medica and Pharmacognosy, Scoville's The Art of Compounding, Beal's Prescription Practice, Dorland's Pocket Medical Dictionary, Ruddiman's Incompatibilities in Prescriptions, O'Connor's Commercial Pharmacy, Lyon's Pharmaceutical Assaying, United States Pharmacopœia, United States Dispensatory, National Dispensatory, National-Standard Dispensatory, King's American Dispensatory, Prescott's Organic Analysis, Allen's Commercial Organic Analysis, Pharmaceutical Journals, Reports of American Pharmaceutical Association.

HORTICULTURE.

PROFESSOR SANDSTEN.

INSTRUCTOR PRICE.

Instruction in this department consists of lectures, recitations, and exercises in the greenhouse laboratory, orchards, and gardens of the experiment station. It is the aim to give a thorough course in the practical and scientific phases of the growing of our economic fruit, vegetable, and ornamental plants.

Seniors in Horticulture

JUNIOR CLASS.

601. Principles of plant culture: This includes the study of germination, propagation, environment, transplanting, etc.; also methods of preparing and sowing seed beds. *Recitations, two hours, first term.*

Text-books: Principles of Plant Culture (Goff), The Nursery Book (Bailey).

601 (a) Plant propagation: Studies including seed testing, propagation of different plants, pruning, etc. Students are required to submit illustrated notes. *Laboratory and field, four hours, first term.*

602. Principles of fruit growing: A study of the more important fruits of the United States with especial reference to their cultivation and fertilization. Details of marketing southern fruits are studied. *Recitations and lectures, one hour, laboratory two hours, second term.*

Text and reference books: Principles of Fruit Growing (Bailey), Popular Fruit Growing (Green), Lessons in Fruit Growing (Goff).

603. Vegetable gardening: Studies of the principal truck and garden crops with notes as to the origin, classification and economic importance; methods of planting, fertilizing, harvesting, storing and marketing these crops. *Recitations and lectures two hours, laboratory two hours, second term.*

Text and reference books: Vegetable Gardening (Bailey), Up-To-Date Truck Growing in South (Davis), Vegetable Gardening (Vilmorin), Southern Gardener's Manual (Newman).

603. (a) Vegetable gardening: A continuation of course 603 with special emphasis upon the commercial side of truck growing. *Recitations and lectures, two hours; laboratory, two hours, third term.*

Text and reference books: Vegetable Gardening (Bailey), Up-To-Date Truck Growing in South (Davis), Vegetable Gardening (Vilmorin), Southern Gardener's Manual (Newman).

604. Orchard technique: A continuation of course 602 with especial reference to orchard management, such as spraying, pruning, and cultivation. *One hour lectures, two hours laboratory work, third term.*

References: Pruning Book, Horticulturists' Rule Book (Bailey).

SENIOR CLASS.

605. Pomology: Varietal studies of fruits; their origin and classification. Exercises in scoring and describing fruits, pecans,

etc. A study of fruit production for the home market, commercial market and canning. *Recitations and lectures, two hours; laboratory, two hours, first term.*

Text and reference books: Systematic Pomology (Waugh), Fruit Harvesting, Storing and Marketing (Waugh), The American Fruit Culturist (Thomas).

606. Landscape gardening: An introduction to the general subject of landscape design. The trees, shrubs, vines, perennials and annuals adapted for Southern gardening are studied. Individual problems are presented for the embellishment of the home and school grounds and plans for public squares and parks are studied. *Lectures, three hours; laboratory, two hours; third term.*

Text: Landscape Gardening (Waugh). References: Modern Civic Design (Robinson), The Landscape Beautiful (Waugh).

607. Canning: Study of the different methods of canning, with reference to handling the by-products of the orchard and garden. *Lectures one hour, laboratory two hours, first term.*

608. Floriculture and greenhouse construction: An elementary course in floriculture with special reference to the growing of the common cutflowers and decorative plants. *Laboratory, four hours, second term.*

609. Forestry: A study of the forest conditions of Alabama, the care of woodlots and the uses of the different Southern woods. Methods of preservation are also studied. *Recitations and lectures, two hours; laboratory and field exercises, two hours; second term.*

Text and reference books: First Book of Forestry (Roth), Practical Arboriculture (Brown), Primer of Forestry (U. S. Dept. of Agriculture), Principles of Handling Woodlands (Graves).

610. Plant breeding: A study of the improvement of fruit and vegetables; the theories and laws of plant breeding and their relation to horticultural production. *Lectures and recitations, two hours; laboratory, four hours; second term.*

Text and reference books: Principles of Plant Breeding (Bailey), Plant Breeding (Davenport).

611. Thesis: Students who expect to take major work in horticulture should select thesis subject not later than October 1st.

ENTOMOLOGY.

PROFESSOR HINDS.
INSTRUCTOR BUCK.

In accordance with the catalogue requirements the work in Entomology is taken by all senior students electing an agricultural group of courses, and by the special two-year agricultural students during their second year. In addition to this senior work the subject is open to postgraduate students, who have completed the senior course satisfactorily, as an elective course leading to the degree of Master of Science. The senior work is given during the fall and spring terms only, while the postgraduate work continues during the college year. In general the instruction is given by lecture courses supplemented by collateral reading as assigned and with appropriate laboratory and field execises.

The senior courses are designed to familiarize the students who anticipate engaging in agricultural work with the most important general facts of entomology as an educational science and with its importance as a subject having wide economic application. So far as possible in the brief time available, they are made familiar with some of the most common insect pests, and with general methods of insect control. Particular emphasis is given to the importance of insect species in their effects upon health of domestic animals and of man especially. A foundation is laid during this year for postgraduate study which may fit men to fill some of the many attractive openings in this field which are quite rapidly multiplying in the South.

Excellent accommodations for the department are now provided on the first floor of Comer Hall. The combined lecture and laboratory room provides accommodations for forty or more men. In connection with the range of greenhouses there is also a large workroom for experimental and demonstrational work with insecticides and an insectary, 16x40 feet, within which the study of insect problems may be conducted at any time under controllable conditions.

No text-book is required in this subject, but reference publications are at all times available to the student. The lectures may be supplemented by appropriate laboratory work, field exercises, the insect collection, photographs, etc., belonging to the department.

701. Structure and development of insects: The general relation of insects to other animals, showing their origin, distinguish-

ing characteristics and the principal structures upon which they are classified, are here considered. A general study is made of the structure and physiology of insects relating to fundamental principles in their life, habits, and reproduction. The most important points in the collection, mounting and preservation of insect specimens are also studied.

702. Ecology of insects: Under this heading are considered some of the most important and interesting of entomological subjects, among which are the general relation of insects to the health and welfare of mankind through the transmission of preventable diseases and the production of articles having a large commercial value. Protective devices of insects and their control through exceedingly complicated but important natural factors are among the subjects considered.

703. Important insect pests: As full a study as the limited time permits is made of the pests of greatest economic importance in the household, the orchard, garden, and greenhouse, the enemies of field crops, stored products, etc.

704. Methods in insect control: The principles of insecticide preparation and application are explained and illustrated. This work is supplemented by an exhibit of the principal insecticide materials. Practice in the preparation of the most commonly used materials is given to emphasize proper and desirable methods. The best types of spraying apparatus are shown and tested, and the student is familiarized with many of the special points in practical work. The importance of the improved methods of agricultural practice is shown and the logical basis of their effectiveness is explained.

ANIMAL INDUSTRY.

PROFESSOR JONES.
ASSISTANT PROFESSOR SUMMERS.
ASSISTANT JOHNSON.

Instruction in this department is given in the class room, in the laboratories, and upon the animal industry farm with the live stock. Class room work in dairy instruction is supplemented, strengthened, and made practical by requiring each student to work in the dairy laboratory where butter is made, where the Babcock test is used, where the lactic acid in cream is determined, etc. While lectures are given on judging animals, the instruction does not stop with the lectures; the students are taken to the barn and feed lots where the animals are placed before them and each student is required to make a written report concerning the animals. In the senior year, trips are made to cities, state and county fairs, and farms to study live stock judging and management. The live stock provided for the students' use in studying breeds and judging animals consists of Angus, Hereford, Jersey, and Short-horn cattle; Duroc-Jersey, Berkshire, Poland-China, and Tamworth swine; Southdown, Dorset, common, and grade sheep.

The department now has the complete herd books of practically all the leading breeds of live stock in America. By the use of these the student is enabled to inform himself in regard to all pedigrees and to study the different scales of points which the breeders have adopted to represent the highest types of the various breeds. All class room instruction is given by means of text-books and lectures. Many of the lectures are illustrated by the use of a baloptican.

The student is given an opportunity to specialize in animal industry throughout the junior and senior years. The following courses are offered:

FRESHMAN CLASS.

801. Breeds of live stock: The object is to study the origin, history of development, the characteristics of each one of the leading breeds of live stock, and to discuss the special adaptability of each breed to southern conditions. The lecture work is supplemented, as far as possible, by representative animals of the breed under discussion. *Lectures, two hours, latter half of third term.*

SOPHOMORE CLASS.

802. Judging beef cattle: The object of this course is to get the student familiar with the beef type of animals and to enable him to appreciate the differences in function and conformation from the dairy type. Instruction is given by the use of the score card and by comparative judging. *Laboratory, two hours, first term.*

803. Judging dairy cattle: The student is familiarized with the dairy type of animal, and is given judging instruction by the employment of the same methods as used in beef cattle judging (802). *Laboratory, two hours, second term.*

JUNIOR CLASS.

804. Dairying: The study of the secretion, character, composition, and production of milk, is made; proper methods of hand-

ling milk and cream for consumption; pasteurizing, sterilizing. The students are given thorough work in using the Babcock test and the lactometer, and the lactic acid test, together with the ordinary tests for the purity of milk and its adulterants. They are also drilled on all the phases of butter making and standardizing milk and cream. Familiarity with the construction, care, and operation of the leading makes of cream separators, and other dairy equipment, is required. *Lectures, two hours; laboratory, four hours, first term.*

805. Principles of feeding: The processes and requirements of the animal's body are first considered, as to the digestion and utilization of food, and the conditions affecting them. Then the common feeding stuffs are considered and a study is made of their value considered chemically and physiologically, and with reference to the composition and fertilizing constituents. Work is given in compounding rations for the various kinds of live stock. *Lectures, two hours, second and third terms.*

806. Swine judging: As much time as possible is given to the judging of swine in the junior year. The student is made familiar with the Duroc-Jersey, Poland-China, Berkshire, and Tamworth breeds of hogs and the breed characteristics of each is pointed out. Instruction enabling the student to recognize the function and the better points in the conformation of the various breeds, is given by the use of the score card and by comparative judging. *Laboratory, four hours, second term.*

807. Sheep judging: The student is instructed in the methods of judging sheep by the use of the sheep score card and by comparative judging. *Laboratory, two hours, third term.*

SENIOR CLASS.

808. Principles of animal breeding: This course embraces the study of the principles of breeding live stock, including the study of variation, its extent and causes; heredity, from the statistical standpoint; selection; importance of fecundity, and the use, or abuse, of in-breeding, line-breeding, cross-breeding, grading-up, with the presentation of the practical application of these principles to the breeders' conditions. *Lectures, two hours, first term.*

809. Animal nutrition: This course consists of a series of lectures, supplemented by reference reading, upon the most profitable methods of producing, finishing, and marketing, swine, beef cattle, and lambs. Feeding dairy cattle and marketing the dairy products are also given consideration. *Lectures, two hours, entire session.*

810. Meats: This consists of a study of the structure and composition of meats, quantity, cost and food value of the various cuts of beef, mutton, and pork; exercise is also given in judging the carcasses of the different classes of animals. A study is made of how the home-dressing and home-curing of pork is carried on. Lectures are given upon the effect of feeding and breeding of the different animals as affecting the value of the carcass and the quality of the meat. *Laboratory, two hours, second term.*

811. Poultry: In this course an effort is made to acquaint the student with the different types of poultry with relation to their use and value on the farm. Instruction is given also in feeding, management, housing, and judging poultry. *Lectures, two hours, third term.*

812. Judging horses and mules: Here the student is made to become familiar with the various classes of horses and mules which are adapted to Alabama conditions and to study the conformation of each class. *Laboratory, two hours, first term.*

813. Live stock farm management: Only those seniors who are especially interested in livestock are expected to take this course. A study is made of stables and equipment for the handling of the different classes of live stock with special reference to convenience, the needs of the animals, and sanitation. The practical production and management of horses and mules, cattle, swine, and sheep intended for various purposes are emphasized. The successful methods of operating farms devoted chiefly to live stock, are studied. *Lectures, two hours, second and third terms.*

814. Herd book study: This includes a study of the various herd books with the view of becoming familiar with the pedigrees of the leading strains and families of the different breeds of live stock. Emphasis is made on the methods and rules of registration for each of the breeds of live stock. The rules and regulations governing the importations of live stock into the United States and into Alabama, together with the rules and regulations governing the moving of live stock within the United States and Alabama, are studied. *Lectures, two hours, second term.*

815. Dairying: This course is outlined to meet the requirements of the senior veterinary students and is very similar to the course outlined in 804. *Lectures, two hours, second term.*

SPECIAL TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR.

816. Dairying: A separate course in this subject giving special attention and instruction for the benefit of the two year students in agriculture, is maintained. The student is familiarized with the butter fat tests, the use of the lactometer, determination of lactic acid in milk, churning, cream separation, etc. Practice is also given in determining the various common adulterants of milk. *Lectures, two hours, laboratory, four hours, first term.*

817. Live stock feeding: This course is offered for the benefit of the first-year veterinary students and the first-year special agricultural students. The food requirements of the animals' bodies are briefly considered. All through this course the practical, rather than the scientific, side of feeding is emphasized. Special reference is made to feeding horses and dairy cattle. Veterinary students are allowed to discontinue this subject at the middle of the second term. *Lectures, two hours, entire session.*

818. Live stock management: This course, also, is for the needs of the first year veterinary students and the first year special agricultural students. It consists of a series of lectures on the care, housing, and managementt of horses, cattle, swine, and sheep. *Lectures, two hours, latter half of second, and the third term.*

819. Dairy cattle judging: The second term is devoted to judging dairy cattle, in the place of the course in dairying. A detailed study of the several different breeds of dairy cattle is made, and their chief distinctive characteristics pointed out. Exercises in practical judging are given by the use of the score card and by comparative judging at the barns. *Laboratory, four hours, second term.*

820. Judging beef cattle: In this course the student is familiarized with the leading breeds of beef cattle and a study of the conformation of each type is made. Practical judging at the barns is the means of accomplishing this. *Laboratory, two hours, third term.*

SECOND YEAR.

821. Judging horses and mules: A special course of judging is maintained for the second year special students in agriculture. The various types of horses and mules and the market classes are studied. Representatives of the different classes are

brought before the students who are, by the detailed study, given an opportunity to become thoroughly familiar with each of them. *Laboratory, four hours, first term.*

822. Poultry: This course in poultry consists of the study of the classification and breeds; the housing, feeding, and caring for all classes and ages. From time to time hours are spent in judging. A large number of breeds are available for study and the value of others is taught by the use of a baloptican in illustrating lectures. *Lectures, two hours, first term.*

823. Swine judging: This course is a continuation of the course of judging begun in the second year by the study of horses and mules. All the leading breeds of swine are kept at the station barns, and the student has ample opportunity to become thoroughly familiar with each. The difference in function and conformation between the lard and bacon types, and the scrubs or natives, is pointed out. A study is made in practical judging by the use of the score card and by comparative judging. *Laboratory, four hours, second term.*

824. Meats: This course includes a study of the effects of various feeds on the meat and lard of hogs, and other animals; finishing stock for slaughter; slaughtering; dressing and curing of the meat. In the laboratory work the student is required to put into practice the methods taught. *Lecture, two hours, laboratory, two hours, second term.*

825. Principles of breeding: A course of study of the principles of breeding live stock, giving special attention to the problems of the practical breeder. Much attention is given to fecundity, in-breeding, cross-breeding, grading up, and inheritance. Variation; its causes and benefits are studied. *Lectures, two hours, third term.*

826. Sheep judging: A course the third term is given to make the student thoroughly familiar with the leading breeds of sheep, their conformation and uses. Many of the leading breeds are available for the use of the class in judging work. *Laboratory, two hours, third term.*

THE DEPARTMENT OF SCHOOL AGRICULTURE OR AGRICULTURAL EXTENSION WORK.

PROFESSOR DUNCAN.
PROFESSOR HOBDY.
ASSISTANT BECHDEL.
ASSISTANT MRS. ROBINSON.

The department of School Agriculture or Agricultural Extension Work was created in June, 1909, by the Alabama Polytechnic Institute, in co-operation with the United States Department of Agriculture, Washington, D. C.

There are three phases or lines of work for the agricultural colleges:

1. The experimental or research work which is conducted on the station farm and in the various laboratories.
2. Class room and laboratory teaching for students who come to college.
3. Outside teaching or extension work.

The National Country Life Commission appointed by the President in 1908 for the purpose of taking stock of country life conditions, in order that the President might make intelligent suggestions to Congress for legislation to improve these conditions, has, as one of its three final recommendations, the following to say about extension work:

"Each state college of agriculture should be empowered to organize as soon as practicable a complete department of college extension, so managed as to reach every person on the land in its State, with both information and inspiration."

Extension teaching includes work along the following lines:

1. Personal acquaintanceship in such a way as to arouse interest in farming.
2. Giving information by personal correspondence and circular letters.
3. The publication of leaflets and pamphlets along agricultural and other educational lines.
4. Co-operating with and assisting various organizations and societies having for their object the improvement of agricultural conditions.
5. Assisting and co-operating with schools, aiding them in teaching agriculture, in improving school grounds and in making school gardens.

6. Arranging and directing reading courses for farmers and farmers' wives.
7. Conducting demonstrations on the farms connected with schools.
8. Running educational trains.
9. Assisting in farmers' short courses and farmers' institutes.
10. Organizing boys' and girls' Farm-Life Clubs.
11. Conducting correspondence courses for farmers.

COLLEGE OF VETERINARY MEDICINE AND SURGERY

By direction of the United States Civil Service Commission and Department of Agriculture, this college has been added to the list of accredited veterinary colleges, and placed in class A.

VETERINARY MEDICINE AND SURGERY.

PROFESSOR CARY.
ASSISTANT PROFESSOR M'ADORY.
INSTRUCTOR WEBB.
INSTRUCTOR HAMILTON.
INSTRUCTOR FERGUSON.
LECTURER BAHNSEN.
LECTURER WHITE.

PHYSIOLOGY AND VETERINARY SCIENCE.

101. Physiology: The students in the regular and special agricultural courses, in all of the pharmacy courses, in the course in chemistry and metallurgy, and in the three-year course in veterinary medicine and surgery, all study elementary physiology. The aim of the course is to teach anatomy, histology, hygiene, and sanitation. The instruction is given by lectures, demonstrations, and text-book. Text-book, Martin's Human Body (Advanced). *Two hours, entire session.*

102. Veterinary science (Elective): For students in agriculture. Lectures and chemical work in the junior year. In the senior year, the student may elect, with the consent of the professor in charge, six hours in the regular three-year veterinary course. The aim of the instruction given to the agricultural students is to teach such lessons as will enable them to prevent many diseases on the farm by correct hygiene and sanitation. At the same time, they will be instructed in the ways and means of treating and handling the common diseases of farm animals. This work will prepare them for the "first aid" treatment and emergencies as well as for the course in veterinary medicine and surgery. *Five hours, junior year; six hours senior year.*

VETERINARY MEDICINE AND SURGERY.

The three-year course in veterinary medicine and surgery leads to the degree of Doctor of Veterinary Medicine. It is the outgrowth of fifteen years' work of the department of physiology

Veterinary Laboratory

and veterinary science. Moreover, it has been established to meet the demand of the young men of the South who desire to become educated veterinarians, and for students who desire to prepare for the study of human medicine.

EQUIPMENT.

The main veterinary building has an independent gas plant and a connected sewer system. It is supplied with electric lights and water. The building contains an office, two lecture rooms, a physiological laboratory, and a museum on the first floor; on the second floor, are located two research laboratory rooms, a library and reading room, a large lecture room containing an incubator room, and all the necessary apparatus for pathological, histological, and bacteriological work.

A separate building is used as a house for small animals (rabbits, guinea pigs, pigeons, etc.) that are employed for experimental and demonstration work in bacteriology, histology, and physiology.

The anatomy division has a separate one-story brick building with good ventilation and extensive sky light. It is supplied with gas, water, and electric lights. The anatomy museum contains the skeletons of man, the horse, the ox, the sheep, and the pig, and models of the limbs and special organs of man and the horse. It is also supplied with different lots of bones of the horse with dissected and dried limbs showing the relation and attachment of muscles. An hexagonal operating pavilion thirty-six feet in diameter has just been completed. It is supplied with water and electric lights and lockers for students.

The veterinary hospital contains five box stalls, four open single stalls, an office, and feed room, on the first floor; a large room for storing hay, fodder, and feed, is found on the upper floor. The veterinary department has for its exclusive use about six acres of land divided into lots, pens and paddocks. In one of the lots, are located two large sheds having a capacity for accommodating one hundred and twenty-five cattle or large animals. These sheds are used for tick fever inoculation purposes and for isolation of animals affected with infectious diseases.

The three-year veterinary course students take five terms of work in the department of animal industry and dairying, one year's work in pharmacy; four terms of work in the chemical department, two terms' work in botany and one year's work in English. The facilities and equipment of these department are excellent.

The veterinary course is especially strong in practical laboratory work.

1. In anatomy the work of dissection is continued through the first and second years and the first term of the third year. It is a well established fact that useful surgical or real anatomy can not be acquired without careful and thorough work in the dissecting room. Special stress is given to comparative anatomy of the horse, ox, sheep, pig, and dog.

2. Clincial laboratory work is also required throughout the course. The clinical work comes six days in the week and the cases presented embrace mules, horses, cattle, sheep, dogs, poultry, and hogs. The variety is such as to illustrate a large number of diseases, surgical operations, and therapeutic applications.

3. The physiological laboratory is supplied with apparatus for tests and experiments in physiology.

4. The laboratory for pathology, histology, and bacteriology is extensive, and is fully fitted with the latest apparatus. This laboratory has been the outgrowth of twenty years of cumulative additions. The aim is to teach students to work in the laboratory rather than to memorize the printed page of the text-book.

5. In chemistry and toxicology the students work in one of the best of chemical laboratories.

6. In pharmacy, the students work in practical pharmacy for five hours a week for a year. In this they learn to recognize, compound, and dispense drugs.

7. The animal husbandry department affords ample facilities for practice in feeding and judging cattle, sheep, hogs, and mules.

8. The dairy department gives practical laboratory work in dairy operations and in handling and feeding dairy cattle.

9. The botanical department is well equipped and gives excellent opportunity for laboratory work.

10. The subjects in the course of study are such as are required in the leading veterinary colleges of America. The course meets the requirements of the American Veterinary Medical Association and the Bureau of Animal Industry and United States Civil Service Commission. It is the aim to have the teaching staff meet the requirements of the best standards. The length of the course is three years of nine months each.

FIRST YEAR.

103. Human physiology: Elementary human physiology. The instruction is given by lectures, demonstrations, and text-books. *Two hours, entire session.*

104. Histology: Deals with the minute anatomy of the various tissues. It includes methods of fixing, imbedding, sectioning, mounting, staining, and a microscopical study of the tissues. Histology is studied by lectures and by laboratory work. *Five hours, first and second terms.*

105. Embryology: This is a study of the development of the embryo and is designed to prepare the students for the study and practice of obstetrics. *Five hours, third term.*

SECOND YEAR.

106. Veterinary physiology, recitations: Treats of the actions or functions of the various vital organs of the animal body. Attention is also given to the laws of health and the conditions most favorable to the healthy action of the animal body. *Two hours, first and second terms.*

107. Physiology laboratory: A part of the course deals with chemical physiology and the vital processes of the organs of the domestic animals. *Two hours, third term.*

108. Bacteriology: The principles of bacteriology and chief pathogenic organisms are carefully studied. *Three hours in class room and three in laboratory, first term and first half of the second term.*

109. Pathology: This deals with the general pathological anatomy and histology as observed in man and the different species of animals, and a study of the cellular changes in diseased tissues and organs. *Three hours recitations and three hours in laboratory, last half of the second term and entire third term.*

110. Obstetrics: Practical work is given as cases are presented. *Two hours, first and second terms.*

111. Special surgery: This includes surgery of the head, eye, neck, chest, limb, skin, abnormal organs, urino-genital system and castration. It consists of lectures supplemented by practical operations. *Two hours, second and third terms.*

Botany: A study of medicinal and poisonous plants. *Two hours, first and second terms.*

THIRD YEAR.

112. Surgical exercises: In these exercises the student is required to perform the principal surgical operations. *Two hours, second term.*

113. Infectious diseases: This is a study of the diagnosis and preventive sanitation of the animal plagues. *Two hours first term, three hours second term.*

114. Parasites: This subject deals with the parasitic infesta-

tions of man and animal. An abundance of material is available. *Two hours, second and third terms.*

115. Meat inspection: Embraces recitations, lectures, and abattoir inspections in the smaller and larger cities of the State. *Two hours, first and second terms.*

116. Milk inspection: The course includes the study of milk adulterants, sanitary construction of dairy barns and dairy houses, conditions of cows and the diseases of dairy cattle; the feed, the water supply, the dairy cans, bottles and wagons, the diseases and filth germ of milk. *Three hours, third term.*

117. Urinalysis: This course is largely laboratory work. *Three hours, third term.*

118. Toxicology: Is a study of the chemical, physical, physiological actions of poisons. The laboratory courses embrace the official tests for poisons. *Seven hours, third term.*

Thesis: Development and preparation of an original theme on some subject relating to veterinary medicine and surgery, or veterinary sanitation and hygiene is required. *Four hours, entire year.*

FIRST, SECOND, AND THIRD YEARS.

119. Comparative anatomy: Based upon the descriptive anatomy of the horse. It includes lectures and dissection. The course in anatomy is continued in the dissecting room throughout the first and second years, and the first term of the third year. The work will be taken up in the following order:

(a) Osteology: Requires a thorough knowledge of the bones of the horse and the comparative variations as found in the ox, pig, dog and sheep.

(b) Arthrology: The course consists in a study of the joints or articulations and the synovial sacs.

(c) Myology: Includes a study of the muscles with their tendons and synovial sheaths or bursae.

(d) Splanchnology: Treats of the internal organs found in the thorax and abdomen. Special attention will be given to these subjects in the horse, ox, sheep, pig, dog and cat. It is designed both for the practitioner and meat inspector.

(e) Angiology. It treats of the blood vessels and heart and lymph vessels and glands. This is designed to meet the requirements of the practitioner and meat inspector; hence, the students must locate the lymph and glands in the horse, ox, sheep, pig, and dog.

(f) Neurology: Calls forth a study of the cerebro-spinal, and sympathetic nervous systems.

(g) Special anatomy: Comprises the study of the organs of special sense, urino-genital organs, the foot and the larynx.

120. Materia medica and therapeutics: A study of the principal drugs used in veterinary medicine, their doses, physiological actions, therapeutic uses, and prescription writing. *Third term of second year; and first and second terms of third year.*

121. General surgery: This course embraces the general principles of surgery. *Two hours, third term of second year; and first term of third year.*

122. Clinical laboratory: Free clinics. Students are required to study each case. A great variety of cases is always presented. *One to two hours each day, second and third year, and three hours on Saturday for all classes.*

123. Veterinary medicine: This deals with the principles and practice of veterinary medicine. *Three hours, second and third years.*

124. Physiology and hygiene—Teachers' course: The department can give the following line of instruction to prospective Alabama teachers.

1. Structure of human body and animals.
    (a). Study of cells, tissues, and organs.
    (b). How to use the smaller animals in teaching naked eye anatomy.
2. Physiological actions of the different parts and products of the animal and the human body. This embodies:
    (a). Functional tests.
    (b). Chemico-physiological tests.
    (c). Physico-physiological tests.
3. Hygiene, embracing instructions in personal health problems.
4. Sanitation, including health conditions of cities, homes, public buildings, farms, barns, dairies, etc.
5. Care of animals on the farm and in the city.

TEXT AND REFERENCE BOOKS.

General Chemistry—Remsen's College Chemistry.

Physiology Recitations—Martin's Human Body.

Physiology Laboratory—Fish's Elementary Exercises in Physiology; Smith's Manual of Veterinary Physiology.

English—To be announced in September.

Anatomy—Sisson's Comparative Anatomy.

Clinical Laboratory—Blank Books or Note Books.

Histology—Piersol, Bohm, Davidaff and Huber, Bailey, and Lectures.

Embryology—Hertwig-Mark; Minot. Lectures.

Livestock Management—Lectures and text-books to be announced later.

Feeding livestock—Smith; Henry; Jordan.

Animal Hubandry—Craig, and Lectures.

Botany—Lectures; Pammel's Poisonous Plants.

Pharmacy—Lectures; and Stevens.

Bacteriology—Lectures; Moore's Bacteriology.

Pathology—Ziegler; Kitt; Adami; Kingsley.

Obstetrics—Williams; DeBruin; Fleming; Dalrymple.

General Surgery—Lectures and Frohner; Moeller.

Special Surgery—Lectures; Moeller; Merillat; Frohner.

Surgical Exercises—W. L. Williams.

Materia Medica and Therapeutics—Wilcox; Winslow; Fish; Quitman.

Veterinary Medicine—Law. Vols. 1, 2, and 3, Moussu; Friedberger and Frohner.

Infectious Diseases—Moore—Law. Vol. 4.

Parasites—Neuman—Law. Vol. 5; Stiles; Kaupp.

Milk and Meat Inspection—Van Slyke; Conn; Ostertag; Peters; Edleman-Eichhorn; Lectures.

Toxicology—Tanner; Fish.

Urine Analysis—Fish.

Restraint of Animals—White.

ORGANIZATIONS

CADET BAND.

A. L. THOMAS, Bandmaster.

Three musical organizations are maintained—the band, the orchestra, and the glee club. Membership in these organizations is open to any student who has musical talent.

The band is maintained by the college for students who desire to develop their musical ability and for those who wish to learn music. It furnishes music for all college exercises and takes part in military manoeuvres. Regular and individual instruction is given free of charge during the first term, embodying the rudiments of music and general musical information in conjunction with the practical instruction on the instrument. Public concerts are given weekly during the second term, and engagements elsewhere are usually arranged.

A gold medal is given each year by the bandmaster to the member who makes the best record.

The orchestra is an organization for musical recreation, and members are carefully selected by the director, according to their musical ability.

The glee club, comprising the quartet, chorus, and stringed instruments, is a student organization. The services of a musician are secured to assist with the instruction and training of the quartet and chorus. Two concerts are given at the college and concert tours are arranged during the second and third terms.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

E. S. KING, General Secretary.

This association is regularly organized and a suite of well furnished rooms has been secured for its exclusive use. Through its weekly meetings and Bible Study Classes it exerts a wholesome Christian influence among the students.

Students are advised to unite with the association when they enter the college.

The ladies of the different churches in Auburn are organized into an auxiliary association to the Y. M. C. A. of the college.

LITERARY SOCIETIES.

There are two literary societies connected with the Institute—the Wirt and the Websterian. Each has a hall in the main building. These societies hold celebrations on the evenings of Thanksgiving day and 22nd of February.

To encourage the literary societies the trustees have directed that a medal be awarded at Commencement to the member of each society who is both efficient and regular in attendance, and who is the best debater. The method of selection is determined by the faculty.

SOCIETY OF THE ALUMNI.

The annual alumni oration is delivered by a member of the society in Langdon Hall on Alumni Day, Tuesday of Commencement week.

OFFICERS OF THE ALUMNI ASSOCIATION.

W. M. Williams, '96, Montgomery, Ala.	Orator
Thomas Bragg, '01, Auburn, Ala.	President
R. D. Webb, '97, Auburn, Ala.	Secretary and Treasurer

Non-Resident Vice-Presidents.

E. N. Brown ,'82	Mexico City, Mexico
Francis C. Dillard, '75	Chicago, Ill.
E. A. Price, '80	Nashville, Tenn.
Arthur Redding, '94	Atlanta, Ga.
Oliver J. Semmes, Jr., '97	Pensacola, Fla.

Alabama Vice-Presidents.

B. B. Ross, '81	Auburn, Ala.
W. W. Pearson, '82	Montgomery, Ala.
C. W. Ashcraft, '88	Florence, Ala.
Roger ap C. Jones, '87	Selma, Ala.
J. Thos. Heflin, '91	Washington, D. C.
Tracy Lay, '03	Gadsden, Ala.
Jno. V. Denson, '05	Opelika, Ala.
E. T. Collier, '07	Montgomery, Ala.
B. L. Shi, '04	Auburn, Ala.
M. A. Frazer, '06	Mobile, Ala.
Rev. Thomas Mangum, '95	Union Springs, Ala.
M. S. Sloan, '01	Birmingham, Ala.
Howard Lamar, '82	Jasper, Ala.

ENGINEERING SOCIETY.

All students in the courses of engineering and architecture are eligible for membership in the Engineering Society. Meetings are held twice a month, and the chief purpose of the society is to promote personal fellowship among the members, and closer affiliation with practical engineers. Prominent engineers in all lines are invited to address the society from time to time upon subjects connected with their work. At other meetings the program is supplied by the student members, thus giving opportunity for the students in one department to become somewhat familiar with the problems met with in other lines of engineering.

For the present, the meetings are held in Langdon Hall, but it is expected to provide suitable quarters for the society in the new Broun Engineering Hall. No regular dues are required of the members, but an occasional assessment is made to cover necessary expenses.

AGRICULTURAL CLUB.

The Agricultural Club was organized in 1907. All students interested in agriculture and the agricultural sciences are eligible for membership. The members of the Agricultural Faculty take an active part in the work of the club. Meetings are held once a week, and an effort is made to promote interest in all lines of agriculture, to develop a spirit of good fellowship among the students of the course, and to bring them in contact with prominent workers of the science as opportunity offers to present them on the regular program.

Meetings are held in the club room in Comer Agricultural Hall.

VETERINARY MEDICAL ASSOCIATION.

The Veterinary Medical Association was organized in 1907. The meetings are held bi-weekly in the veterinary building. Medical subjects are discussed by the members or by some invited speaker or member of the veterinary medical faculty. All students of the Veterinary College are eligible to membership. The objects of the association are fraternal, intellectual and cultural. The annual banquet of this association is an occasion of good fellowship for the students, faculty, and veterinary alumni.

GYMNASIUM AND ATHLETIC FIELD.

The gymnasium is situated at the west end of the athletic and drill grounds, and contains one room, 80x40 feet, with strong beams above for fastening the usual fixtures.

The athletic field has a quarter-mile cinder track and ample space for football, baseball, and general athletics.

Drake Field—A new athletic field, named in honor of the Surgeon, Dr. J. H. Drake, has been provided for baseball, football, and track athletics. It is situated on the experiment station grounds near the gymnasium. It will be gradually beautified and equipped with necessary buildings and accommodations.

DISCIPLINE REGULATIONS.

The government of the college is administered by the president and faculty in accordance with the code of laws and regulations enacted by the trustees.

Each student upon entering is required to sign his name in the matriculation book and pledge himself to obey the rules and regulations of the college.

All students are required to wear the prescribed uniform.

Attention to study and punctuality in attendance on recitations and all other duties are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using or causing to be brought into the college limits, intoxicating liquors.

Students are not permitted to participate in any public entertainment, or game, without previously obtaining the consent of the faculty.

No student will be permitted without the approval of his parent or guardian, to take part in a public game of football.

No student who has failed in two or more subjects will be permitted to be absent from college for athletic contests or other purposes.

(a) Every absence from recitation or examination is graded zero.

(b) When the grade of a student is lowered by reason of absence, for which satisfactory excuse can be rendered, a special re-examination may be subsequently granted, and the grade made on the special re-examination alone is substituted for that previously received.

(c) Only sickness, as reported by the surgeon, or absence by reason of family sickness, or official or collegiate business, will constitute a satisfactory excuse for granting a re-examination.

When a student is called away from college by his parents for reasons other than those specified above, his zeros for absence are not removed.

The term grade of a student is the average of his daily sessional and term examination marks, found by giving due weight to the term examination.

Only privates of the senior class in full standing who are candidates for graduation may be excused by the president from all military drills, and also students over twenty-one years of age *at the time of entering college* that are permitted to devote their time to one special study, as chemistry, agriculture, pharmacy,

O. D. Smith Hall

or engineering, provided the time devoted to drill is spent by them in laboratory work.

No student can remain an officer who receives during the session more than one hundred demerits.

BOARDING.

The students board at Smith Dining Hall or with families of the town of Auburn, thus enjoying all the protecting and beneficial influences of the family circle.

For each house an inspector is appointed. whose duty it is to report those who are guilty of any violation of order. The report of the inspector is made to the commandant at stated intervals.

Students, after selecting their boarding houses, are not permitted to make changes without obtaining permission from the president, and this permission is given only at the close of a term, except for special reasons approved by the parent.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the senior class are exempt.

The drills are short and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students, unless excused on the written request of parents for religious scruples, are required to attend these exercises, and also to attend the church of their choice on Sunday morning.

Opportunities are also offered for attending Bible classes every Sunday.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above ninety per cent.

Certificates of distinction are awarded in public on Commencement day to those who obtain an average of ninety per cent. in all the prescribed studies of a regular class; and also to those who obtain three distinctions in the freshman class, four in the sophomore class, five in the junior class, and six in the senior class; provided they have satisfactorily passed all the regular examinations of that session, and have not received forty demerits during the year.

A distinction is not given in the senior class if the average grade in any one subject is less than 75 per cent.

HONORS.

Members of the senior class who attain distinction at the final examinations with an average grade, in the subjects required, of 95 per cent. are published as *Graduates with Highest Honor.*

Those who attain distinction with an average grade of 90 per cent. and less than 95 per cent. are published as *Graduates with Honor.*

Those who attain less than 90 per cent. and more than 60 per cent. are published as *Graduates.*

Students of the classes lower than the senior who attain distinction with an average grade in the required subjects of 95 per cent. are published in alphabetical order as having attained *Highest Distinction.*

RECORDS AND REPORTS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

At the close of each term and at regular intervals reports giving the grade made by each student are sent to the parent or guardian.

EXAMINATIONS.

Written examinations on the studies of the half-term are held by each professor during the months of October, February, and April. Each examination occupies one hour.

At the end of each term written examinations, or written and oral, are held on the studies passed over that term.

Special examinations are held only by order of the faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters college shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except for providential reasons.

HONOR SYSTEM.

During the session of 1910-11 the Honor System, which for years had been in effect in the higher classes, was adopted by the entire student-body of the institution, to apply to all work done in class room and on examinations. Under this system the student is pledged neither to give nor receive any assistance, whatsoever.

All students upon entrance subscribe to the Honor System as in force at this institution.

Proper regulations for administering the system have been adopted by the student-body.

The spirit of truth and honor, thus fostered in the examination room, is an efficient means of raising the scholarship, and tends to inculcate high ideals of honor among the students.

SCHOLARSHIPS—PRIZES.

The following scholarships and prizes have been established:

THE WILLIAM LEROY BROUN MEMORIAL SCHOLARSHIP, OF $170, established by the Alumni Society, in memory of the late distinguished president of the Institute.

THE LIGON SCHOLARSHIP OF $170, established by Col. R. F. Ligon, Montgomery, Ala.

THE THOMAS SCHOLARSHIP OF $170, established by Judge William H. Thomas, Montgomery, Ala.

THE BALL SCHOLARSHIP OF $170, established by Mr. Fred S. Ball, Montgomery, Ala.

THE DUNKLIN SCHOLARSHIP OF $600, established by Mr. and Mrs. J. C. Street, Opelika, Ala., in memory of Prof. J. T. Dunklin, former professor of Latin in the college.

THE 1908 SCHOLARSHIP OF $150, established by the Class of 1908.

THE ALICE CARR SCHOLARSHIP OF $180, established for young women by the late Miss Alice Carr, Auburn, Ala.

THE RANSOM MEMORIAL SCHOLARSHIP OF $125 per year, established by the Alumni Association in memory of the late Prof. A. McB. Ransom, is available for students in the junior and senior classes of the course in chemistry and metallurgy.

THE JEWISH LOAN SCHOLARSHIP OF $1,000, established by a former student of the college.

A scholarship has been established for worthy musicians who are in need of assistance in defraying their college expenses.

The Henderson Scholarship of $100, established by Judge W. L. Henderson, of Miller's Ferry, Ala.

The Sidney Smith Memorial Scholarship of $100, established by his parents, Mr. and Mrs. Smith, of Bessemer, Ala.

The C. S. Yarbrough Scholarship of $1,000, established by Dr. C. S. Yarbrough, Auburn, Ala.

The scholarships enumerated above are loan scholarships, granted to worthy young men and women, to be returned after graduation.

THE ROBERT E. LEE MEMORIAL SCHOLARSHIP OF $100, an annual donation for the son of a Confederate veteran, established by the Children of the Confederacy of Alabama under the auspices of Mrs. Mary G. Pickens.

The above named scholarships and ten other scholarships are administered by the Alumni Society. (*For information, address R. D. Webb, Secretary.*)

THE ARCHITECTS' PRIZES, Medals to the two members of the senior class in the department of architecture who are most proficient in design. Established in 1911 by the Society of Architects in Alabama.

THE THOMAS ESSAY PRIZE, a gold medal offered by Hon. William H. Thomas, of Montgomery, Ala., for the best essay by any undergraduate student of the college. The essay must be written under the supervision of the department of English.
1912, *John Albert Key*, Florida.

THE ORATORICAL PRIZE, medal to that member of the junior class who composed and delivered the best oration on junior class day of Commencement.
1912, *Irwin Talton Quinn*, Marion County.

THE ORATORICAL PRIZE, for the Annual Inter-Literary Society contest, February 22.
1913, *James Reid Campbell, Jr.*, Macon County.

SOPHOMORE MEDAL IN DECLAMATION for Annual contest, May 1st.
1912, *James Reid Campbell, Jr.*, Macon County.

PRIZE FOR BEST DEBATER, a medal given annually by the Board of Trustees to the best debater in the Wirt and Websterian Literary societies each.
1912, Websterian Society, *James Monroe Moore*, Fayette County.
Wirt Society, *William Howard Hudson*, Clay County.

MUSIC MEDAL.
1912, *Charles Porter Wright*, Lee County.

BATTALION MEDAL, for the best drilled soldier.
1912, *Ernest Archibald Dixon*, Mississippi.

Library

Prize for Best Drilled Company, a sword given by Board of Trustees.
1912, *Clarence Pax Andrew,* Georgia.

LIBRARY.

Librarian, James R. Rutland.
Assistant Librarian, Miss Mary Martin.

The beautiful Carnegie library building is constructed of stone and pressed brick. The reading room is 80x40 feet, and the building is equipped with every convenience. It is lighted by electricity and heated by steam. The capacity of the stack room is sixty thousand volumes. The library now contains about 25,000 bound volumes, including valuable reference and scientific books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room and is thus made an important educational feature.

THE O. D. SMITH COLLECTION.

The library of the late Prof. O. D. Smith has been presented to the college by Mrs. O. D. Smith, and is preserved as a memorial to his long and distinguished services to the college.

THE F. D. PEABODY MEMORIAL ROOM.

Through the generosity of Mr. George Foster Peabody, New York City, an annual fund of fifty dollars, income from a permanent investment, is available for the purchase of books and furniture for the "F. D. Peabody Memorial Historical Seminary." F. D. Peabody, Esq., was a distinguished graduate of the Class of 1876.

THE W. D. TAYLOR MEMORIAL COLLECTION.

The engineering library of the late W. D. Taylor, chief engineer of the Chicago and Alton Railway, was bequeathed by him to the Alabama Polytechnic Institute, and is preserved by the college as a memorial to this distinguished alumnus. Mr. Taylor was a graduate of the class of '81, and was regarded as one of the leading civil engineers of the United States.

MUSEUM.

The Museum occupies a large room in the third story of the Main Building. It is provided with suitable cases and is equipped with valuable specimens and models of an instructive character.

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Board, including lodging, fuel, and lights, is furnished at $13.00 to $17.50 per month.

For non-residents of the state, there is a charge of tuition of $20.00 per session, payable on matriculation, in addition to the annual fees payable by all students. A student once entering as a non-resident student will not be permitted to claim residence unless his parent or guardian becomes a resident or taxpayer on property in Alabama.

The necessary expenses for a session, not including uniforms or books, are, for a resident of Alabama, as follows:

College fees	$ 15.00	$ 15.00
Laundry fee	12.50	12.50
Board, lodging, fuel, and lights	117.00	157.50
Total	$144.50	$185.00

By special arrangement with the college authorities, Mrs. M. M. O'Neal and Mr. B. T. Blasingame will accommodate students with board, lodging, and fuel for $12.50 per month.

This estimate does not include the cost of the uniform, $14.00, nor of books, say from $5.00 to $15.00, or the laboratory fees in the higher classes, $5.00.

LABORATORY FEES.

For each student in the junior or senior laboratory in pharmacy, chemistry, electrical, or mechanical engineering, a fee of $5.00 per session is required for each department. In the department of veterinary medicine, a dissecting fee of $10.00 is charged. In the department of animal industry a dairy laboratory fee of $3.00 is charged. These fees are payable *on admission to the laboratory,* and are not remitted.

Special students in laboratory work will pay additional fees for each separate division of work, and will be charged with all material consumed in experiments.

UNIFORMS.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made by a contractor, and are of excellent cloth manufactured at the Charlottesville mill. A suit, including cap, costs at present $14.00. It is neat and serviceable, and less expensive than ordinary clothing.

CONTINGENT FEE.

A contingent fee of $2.50 is required to be deposited by each student on matriculation to cover any special or general damage to college property for which he may be liable. General damages are assessed on the body of students.

At the close of the session, the whole of the contingent fee, or the unexpended balance, is refunded to the student.

AMOUNT OF DEPOSIT.

All fees, including laboratory fees, are payable on matriculation. *By order of the Trustees a matriculation fee of* $12.00 *is retained from deposit of students who withdraw.*

Fees to be paid on entrance:

Incidental	$ 5.00	
Library	2.00	
Surgeon	5.00	
Contingent	2.50	
Athletic	3.00	
Uniform	14.00	
Laundry fee for session	12.50	
For a resident of Alabama	$44.00—	$44.00
Tuition non-resident		20.00
For a non-resident		$64.00

Besides the above, the student should deposit with the treasurer enough to pay for books, one month's board, incidentals, amounting to say $26.00. Hence a resident of Alabama should deposit with the treasurer $70.00; a non-resident, $90.00. For a student entering after January 1st, the deposit for laundry fee is seven dollars ($7.00).

FUNDS OF STUDENTS.

Parents or guardians are advised to deposit with the treasurer of the college all funds desired for sons or wards, whether for regular charges or college fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc.

The college cannot be held responsible for the expenses of a student unless the funds are deposited under specific instructions from the parent or guardian to the treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble and encourages idleness.

NON-RESIDENT STUDENTS.

Tuition for students, not residents of Alabama, is $20.00 per session, unless remitted by the trustees to worthy students upon the recommendation of the faculty.

The remission of this tuition fee to non-resident students will be granted in the form of a free scholarship for the succeeding year to those who obtain a distinction the preceding year, or who, by reason of merit, are deemed worthy.

This tuition for non-residents is remitted to sons of ministers of the gospel.

HONOR SCHOLARSHIPS.

The following non-resident students were granted, each by reason of special merit in conduct and scholarship during the session of 1911-12, an honor scholarship, which exempted from tuition fees:

Edwin Fry Barry	Texas
Charles Hadley Cooper	Georgia
Harry Price Dixey	Louisiana
Emery Elgin Fry	Texas
Augustus Tompkins Graydon	South Carolina
Crawford Buchanan Hawkins	Mississippi
Robert Edward Herring	Tennessee
Charles Burton Hollis, Jr	Georgia
John Rush Lester	Georgia
Herbert Marshall Martin	Florida
John Boyd Overstreet	Kentucky
George Washington Owen, Jr	Florida
Henry Turner Spence	Georgia
Wendell Holmes Tisdale	Florida
William Burley Tisdale	Florida
Furman Leffell Tucker	South Carolina

THESIS.

Each applicant for a degree is required to write and submit to the faculty a thesis, or oration, and read or deliver the same at Commencement, if required by the faculty.

There may be presented, with the approval of the professor in charge, a carefully written report of special work done in a laboratory, showing independent investigation and discussion of some subject.

It must be given to the Professor of English by the first of May. The subject must be submitted for approval by January 1st.

SURGEON.

The surgeon is required to be present at the college daily, to visit at their quarters the cadets that are reported sick, and give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering the Institute.

An infirmary has been established and is properly equipped.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railroad.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tide-water. By statute of the State the sale of spirituous liquors and the keeping of saloons of any kind are forbidden.

ACADEMIC YEAR.

The academic year for 1913-14 commences on Wednesday, September 10, 1913, and ends on Wednesday, June 10, 1914, which is Commencement Day.

It is divided into three terms: The first term extends from the opening of the session to Tuesday, December 23rd; the second term begins Tuesday, January 6th, and ends March 21st; the third term continues to the end of the session.

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VOL. IX No. 2

THE BULLETIN OF THE

ALABAMA POLYTECHNIC INSTITUTE

AUBURN

CATALOGUE
1913-14

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BY THE INSTITUTE
APRIL, 1914

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CALENDAR 1914-1915

Examination for Admission Begins	Monday, Sept. 7, 1914
Session Begins	Wednesday, Sept. 9, 1914
First Term Begins	Wednesday, Sept. 9, 1914
Mid-Term Examinations	Oct. 26, 27, 28, 1914
Literary Society Celebration—Thanksgiving Day	Nov. 26, 1914
First Term Ends	Wednesday, Dec. 23, 1914
Second Term Begins	Wednesday, Jan. 6, 1915
Mid-Term Examinations	Feb. 6, 8, 9, 1915
Senior Class Exercises	Monday, Feb. 22, 1915
Literary Society Celebration	Monday, Feb. 22, 1915
Second Term Ends	Saturday, March 20, 1915
Third Term Begins	Sunday, March 21, 1915
Mid-Term Examinations	April 17, 19, 20, 1915
Senior Theses Reported	Saturday, May 1, 1915
Sophomore Class Exercises	Saturday, May 1, 1915
Field Day	Saturday, May 1, 1915
Final Examinations Begin	Tuesday, May 25, 1915
Commencement Sermon	Sunday, June 6, 1915
Annual Meeting of Trustees	Monday, June 7, 1915
Junior Class Celebration, 10 A. M.	Monday, June 7, 1915
Military Exercises, 4 P. M.	Monday, June 7, 1915
Festival of Lights, 8 P. M.	Monday, June 7, 1915
Alumni Day	Tuesday, June 8, 1915
Military Exercises, 5 P. M.	Tuesday, June 8, 1915
Senior Class Celebration, 8 P. M.	Tuesday, June 8, 1915
Commencement Day	Wednesday, June 9, 1915

CATALOGUE

OF THE

ALABAMA POLYTECHNIC INSTITUTE

STATE COLLEGE

FOR THE

BENEFIT OF AGRICULTURE AND THE MECHANIC ARTS

AUBURN, ALABAMA

1914

Opelika, Ala.:
Post Publishing Co.
1914

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The Institute is a distinctive school of science and its applications; being also the State College for the benefit of Agriculture and the Mechanic Arts, established by the State in 1872 by endowing it with the land grant appropriation made by the United States Congress in 1862.

The leading object of the Institute, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and applications of science.

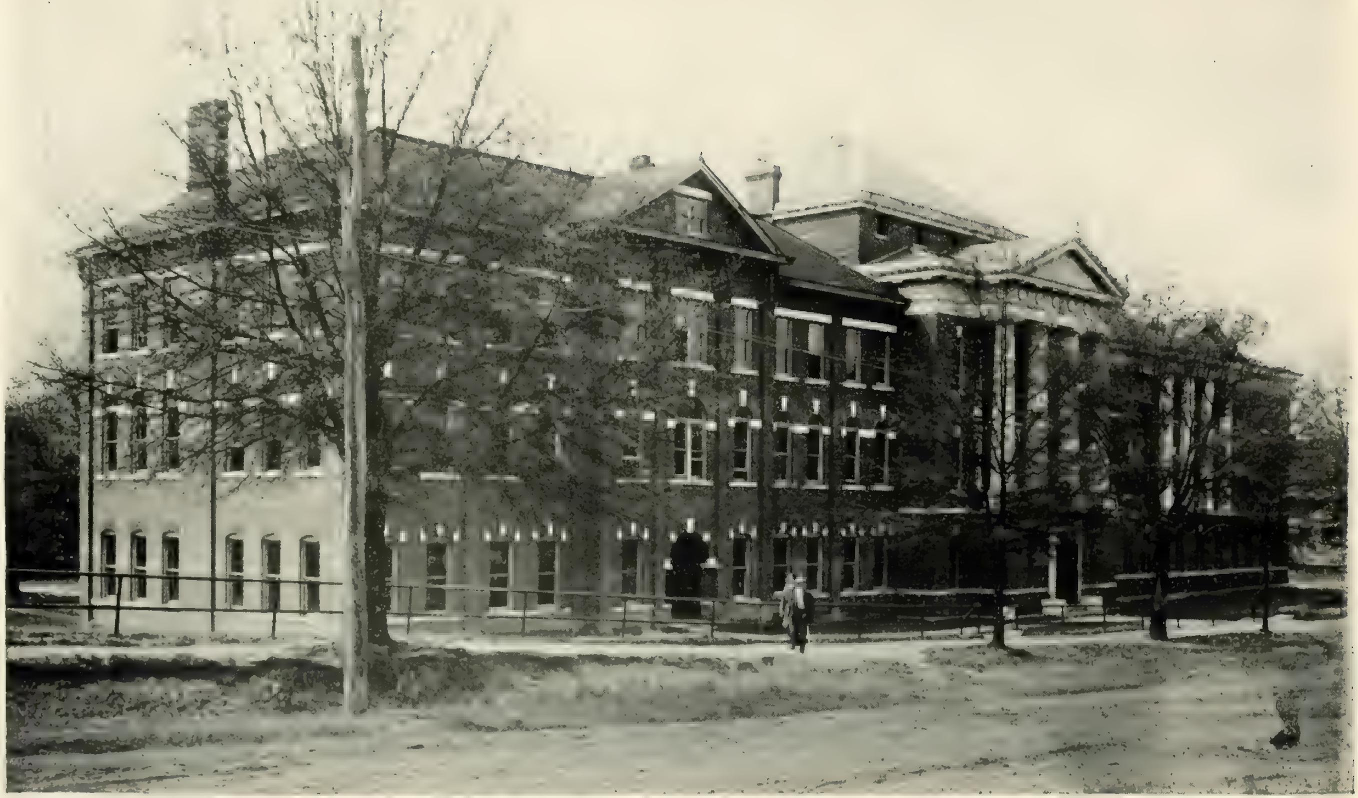
In its courses of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline and liberal education obtained by the study of language and other sciences are not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the faculty. The Institute thus endeavors to educate as well as to instruct, to form character as well as give information of value.



William LeRoy Broun Engineering Hall

LABORATORIES AND FACILITIES FOR INSTRUCTION

The Institute possesses facilities for giving laboratory instruction in English, history, Latin, and the departments of applied science:

COLLEGE OF ENGINEERING AND MINES.

I. Civil Engineering.—A flourishing department of civil engineering has existed in the Institute since its foundation in 1872. The department occupies four rooms; office, lecture room, and spacious drawing rooms. A large amount of practical work is given the students of this department in field work.

Summer Course.—An attendance upon two sessions of the four weeks' summer course, which offers practical work in plane and higher surveying and in engineering, is required of the students taking civil engineering.

The department is equipped with transits, levels, compasses, plane tables, tapes, chains, hand instruments, and other necessary equipment. For the summer work there is a complete camping outfit consisting of wall tents, folding camp cots, stools, cooking utensils, dishes, etc.

II. Electrical Engineering.—In the new engineering building four rooms and two offices are used by the department of electrical engineering. Two rooms are class rooms, another is used for the telephone laboratory, and the fourth is a laboratory for electrical measurements.

The wiring in this building is arranged so that alternating and direct currents of various voltages for power, lighting, and experimental purposes can be delivered to any room.

In connection with the laboratories there is installed a repair and construction shop furnished with a variety of hand tools and with power-driven machine tools.

(*a*) The electrical measurement laboratory is furnished with a variety of resistance boxes, bridges, galvanometers, standard cells, condensers, etc., as well as two photometers. In addition to the laboratory instruments proper, just noted, the department is provided with representatives of most of the types of commercial ammeters, voltmeters, and indicating and recording wattmeters, for A. C. and D. C. work. There is also a 30,000 volt transformer for break-down tests of insulating materials.

(*b*) The telephone laboratory is provided with a full line of telephonic apparatus, telephones, relays, condensers, plugs, jacks, lamp and other signals, etc., representative of the Bell and a number of independent telephone companies.

Single pieces are so mounted that they can be connected up in any desired manner and thus the connections of any particular system can be made up and tested out.

Twenty cells of Edison storage battery are used to furnish energy for a board equipped for common battery and magneto service with trunking circuits. This board is a standard 100-line board equipped with one strip of twenty answering and multiple jacks, ringing, listening keys, and cord signals for four cords.

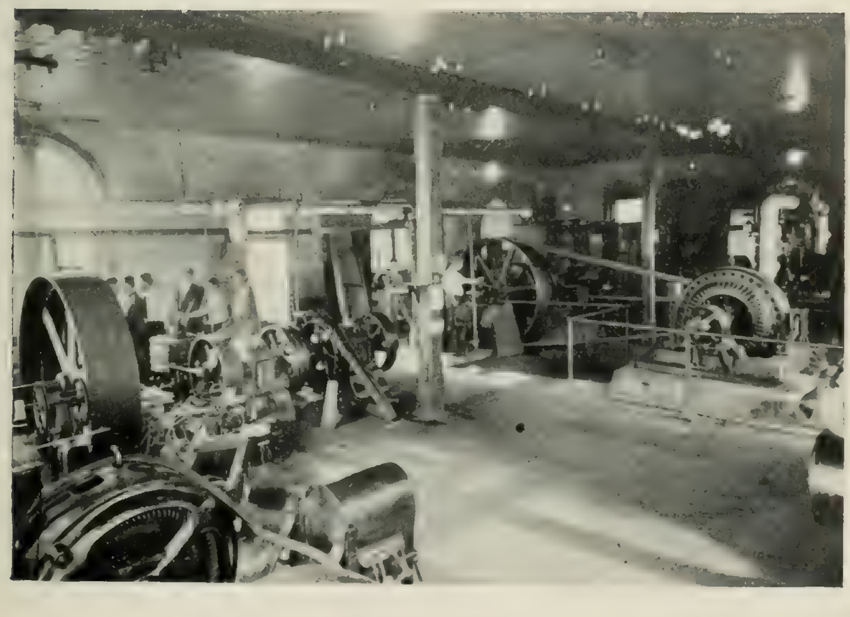
(*c*) The laboratory is equipped with a large number of D. C. and A. C. generators, motors, and other appliances especially adapted for experimental work. In addition the equipment of the power plant is so arranged as to be readily available for purposes of instruction and investigation.

The machines for experimental work are arranged on testing platforms rendering them readily accessible. By means of a comprehensive wiring layout with individual connection boards for each machine, a wide variety of combinations of machines can easily be made.

The main power plant supplies power for operating all shops and laboratories, pumping water, and lighting the town of Auburn. The connected motor load is a little over 250 horse power and about 100 kilowatts are used for lighting service. This plant therefore affords unusual opportunities for students to obtain practical experience in the operation of steam and electrical machinery under commercial conditions.

III. Mechanical Engineering.—The laboratory work is considered an important part of the course and is arranged as far as possible to illustrate and supplement the work as carried on in the class room.

The tests and experiments in steam engineering are performed in the power house and the following apparatus is available for instruction: A 35 horse power cross compound engine, especially arranged for experimental work; a surface condenser with air and circulating pumps attached; a 160 horse power angle compound engine; a 125 horse power tandem compound engine; a 60 horse power simple engine; a 25 horse power Corliss



Laboratory Views

engine; a 20 horse power slide valve engine; a 200 horse power water tube boiler; a 100 horse power water tube boiler; two locomotive air pumps; an electric head light engine; steam pumps, hot and cold water meters, tanks, scales, indicators, calorimeters, thermometers, pyrometers, steam gauges and apparatus for testing steam gauges.

A room on the first floor of Broun Hall is being fitted up with apparatus to further supplement the work in heat engineering. At present there is installed in this room a 12 horse power four stroke cycle engine using gasoline or kerosene, a 4 1-2 horse power four stroke cycle kerosene engine, a 2 1-2 horse power kerosene engine, a 2 horse power two stroke cycle gasoline engine, an Ericsson hot air engine, a motor driven air compressor with motor, a volume blower, and the necessary tanks, scales, indicators and other auxiliary apparatus necessary for making tests.

Another room on the first floor of Broun Hall has been fitted up for a laboratory for the testing of materials. In it are installed a Riehle testing machine arranged for making transverse, compression and tension tests, and micrometer apparatus for measuring the deformation of the specimen under test. There is also provided a cement testing outfit consisting of a testing machine, sieves, briquette moulds, boiler, and other apparatus for testing the strength, setting properties, fineness, and specific gravity of cement.

On the second floor of Broun Hall is located a laboratory for testing fuels, furnace and illuminating gases, and lubricants. The present equipment consists of a Mahler bomb calorimeter and a Parr calorimeter, for determining the heating value of fuels, complete apparatus for collecting and testing flue and furnace gases, apparatus for determining viscosity, the specific gravity, flash point, the coefficient of friction, and other properties of lubricating oils. A small electric motor furnishes power for grinding samples, driving blower for air blast, stirring, and other such work.

IV. Mechanic Arts.—The instruction in shop work is used as an auxiliary in technical education, and as a school of manual training in the arts that constitute the foundation of most industrial pursuits. The work performed by the students is instructive in character, and is intended to give the greatest amount of instruction in principle with the least repetition of operations, and the smallest consumption of time. The work is executed from drawings, and the instructor in charge of the class makes the lessons before the class, or gives such specific directions as may be necessary to enable the student to make them. This is supplemented by individual instruction.

All students in the freshman class take this shop work, three periods a week, each period being two hours long. The sophomore class takes two periods a week. The purpose is not to teach a trade, but to train the eye, the hand, and the mind to more perfect co-operation, a training which will be of value in any pursuit in life. This training involves the principles at the foundations of all trades, of equal value to the student who wishes afterwards to learn a trade.

Three-phase electric motors are used for driving the different shops, the motors receiving current from the large alternator in the dynamo room.

(*a*) The wood department is located in a room 90 x 50 feet, and is provided with a surface planer, a variety saw, a swing cut-off saw, a boring machine, and a grindstone. There are in addition, thirty benches for carpentry work, with the necessary tools.

(*b*) The wood turning and pattern shop is located in a commodious room 40 x 60 feet, in the second story of the new power house. It is equipped with twenty-eight wood turning lathes, a grindstone, a band saw, a buzz planer, a pattern maker's lathe, a double circular saw, a surface planer and a drum sand-papering machine.

In each of these departments special tools for occasional use are kept in a tool room for the purpose.

In addition to the regular carpentry tools in the benches, each student is supplied with a set of chisels, and plane irons, with a locker to keep them in, and is held responsible for their care and condition

(*c*) The forge shop is equipped with twenty-four down draft forges, with anvils, hammers, sledges, and other tools necessary for blacksmith work, including a punch and shear for cutting and punching iron, and a blacksmith drill. The blast is supplied by a blower driven by an electric motor. The smoke from the forges is removed through underground passages by a 60-inch exhaust fan and discharged into the chimney.

(d) The foundry is equipped with a 23-inch Colliau cupola, having a melting capacity of 2,000 pounds of iron per hour, the necessary molding tools for bench and floor work, benches, a core oven, ladles, molding flasks, a foundry crane, etc. A special blower driven by an electric motor is provided to furnish air blast for the cupola. There is also a brass furnace with crucibles, crucible tongs and the appliances necessary for making brass castings.

(*e*) The machine shop is a room 30 x 100 feet, and is equipped with ten 14-inch, two 16-inch and one 18-inch engine lathes, one 10-inch speed lathe, a 20-inch drill-press, a 10-inch sensitive drill, a 16-inch shaper, two iron planers, one 22-inch by 5 feet and the other 26-inch by 6 feet, a back-geared universal milling machine, with vertical milling attachment, a water tool grinder, a bench grinder, a universal grinding machine, a universal cutter and reamer grinder, a twist drill grinder, and two power hack saws. Four of the engine lathes have compound rests, three have taper attachments, and one is fitted with a turret and a large number of special tools and fixtures which practically convert it into a manufacturing lathe, and serve to illustrate the methods of manufacture by duplicate parts.

For chipping and filing, eighteen benches are fitted with vises and each student is supplied with hammer, chisels, files and such other tools as he may need, and a locker in which to keep them. A gasoline engine is installed in one end of the shop, and is used for driving when the steam plant is not running.

The tool room is supplied with general machinist tools, such as chucks, drills, reamers, taps, dies, gauges, jigs, and special tools. A convenient room is supplied with lockers for keeping clothes, and basins supplied with hot and cold water for the use of the students. The different shops are equipped with electric lamps, and current is furnished when necessary.

V. Mining Engineering, Geology, Mineralogy.—The department of mining and geology occupies the west half of the east wing of the new three-story engineering building. The third floor is divided into two well-lighted rooms: (1) for lectures and recitations; (2) for draughting. The lecture room is provided with seats to accommodate sixty-four students. In this room is a screen and electric stereopticon lantern for illustrating lectures. The draughting room has a capacity for thirty. Here the student receives instruction in mechanical draughting and in the calculation and plotting of field notes.

The second story is occupied by the professor's office and the mineralogical laboratory. The latter, like each of the two rooms on the third floor, occupies a floor space of about 960 square feet. In this laboratory there are accommodations for thirty-six. Each student is supplied with a blow pipe outfit, a drawer, and a locker, and each desk is piped for gas. The laboratory is equipped with a good type collection of minerals and lithological specimens, as well as working specimens. There is a selection of fossils and casts illustrating the subject of historical geology. A very useful set of about 100 wooden models of crystals has been imported. The geological department has several specific gravity balances of various kinds, contact and reflecting goniometers, a petrographical microscope, a good collection of slides both for the petrographical microscope, and the stereopticon lantern.

VI. Ore Dressing.—The ground floor is occupied entirely by the metallurgical laboratory. The laboratory is well equipped with ore dressing plants. The concentrating plant consists of a gyratory crusher, two sets of roll crushers, two bucket elevators, four trommels or revolving screens, two classifiers, four Hartz jigs, and a seven-foot Wilfley concentrating table.

The stamp mill is of the full size Nissen type, circular discharge and interior amalgamating plate. The outside amalgamating plate is of full size, being ten feet long. The stamp mill and concentrating plant are fed from their respective bins by two different types of automatic feed. The ore before entering the bin is crushed to proper size by a Blake jaw crusher. The model cyanide plant illustrates the bleaching department of the cyanide process and the extractor box work. It consists of one solution tank, two sand tanks with false bottoms and filters, one gold tank, and a set of extractor box compartments of the up-flow type.

Besides the equipment already mentioned there is an automatic sampler. The cement floor in this department gives a good surface for illustrating coning and quartering in the process of hand sampling.

A twenty horse power motor is the source of power for this laboratory. Shafting, belting, and gears of various kinds transmit the power to the various machines so that a large variety of mechanism is illustrated.

VII. Architecture.—The department of architecture is located in four well lighted rooms in the Main Building. A floor space of 2,250 square feet is occupied by a lecture room, 25 x 30, a large draughting room, 30 x 35, a room for freehand drawing, 25 x 25, and a library, office, and special draughting room, 15 x 30, all connected by doors. These rooms are well furnished with large, substantial drawing tables and extra tables for freehand drawing, fixtures and additional equipment; a collection of selected plaster casts of classic sculpture and architectural details, a large number of architects' drawings and signed original plates, and several hundred examples of freehand drawings of various sorts; a library of standard works and portfolios of plates illustrating details of decoration and composition; four hundred lantern slides and many photographs of notable monuments of architecture; manufacturers' samples and catalogues; and various current journals devoted to architecture and the allied arts.

VIII. Mechanical Drawing and Machine Design.—The department of mechanical drawing and machine design is supplied with equipment for teaching mechanical drawing, descriptive geometry, kinematics, and machine design.

A convenient cabinet is supplied with a complete set of Schroeder's descriptive geometry models for demonstrating the principles of descriptive geometry and mechanical drawing. A small reference library and a library of selected catalogues of manufacturers, which is being established for the use of students in advanced machine design, occupy a suitable case. A Beck vertical wall file, 36 x 48 inches, for filing commercial blue prints, is filled with selected blue prints furnished by prominent manufacturers, and is made use of by students in machine design.

A number of kinematic models and a large collection of engineering specialties, sectioned to show interior, which were donated by the various manufacturers, occupy a sectional case, and are used in elementary work in machine design and mechanical drawing. The filing envelopes, which contain the students' drawings, are kept in alphabetical arrangement in a case of drawers.

This department is equipped with an outfit for making blue prints, consisting of two sun printing frames 18 x 24 inches and 30 x 42 inches, each mounted on a car and track, and suitable convenience for washing and drying the prints.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye, and hand to accuracy of observation and execution. Four large well-lighted drawing rooms, which will accommodate (at one period) two hundred and fifty students, are provided with tables, lock boxes, etc. The drawing rooms have been equipped with one hundred and fifty new drawing tables of the most modern pattern.

COLLEGE OF AGRICULTURAL SCIENCES.

IX. Practical Chemistry.—The chemical apparatus recently purchased for the chemical laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to the first class laboratories, there have been imported a new and improved Schmidt and Heinsch's polariscope, ten short-arm balances of latest pattern, Bunsen's spectroscope, Abbe refractometer, and other instruments for delicate and accurate work.

The investigations that are undertaken in this laboratory by scientific experts, in connection with the work of the agricultural experiment station, are of special value to advanced students, and afford them unusual opportunities to learn the methods of scientific research.

The building contains a large general laboratory that accommodates eighty students, a special laboratory for seniors that will accommodate forty students, a lecture room with a capacity of one hundred and fifty seats, and nine other rooms, all appropriated to instruction and research in chemistry.

The State chemical laboratory for the official analysis of fertilizers is connected with this department.

X. Agriculture.—The agricultural experiment station, established in connection with the Institute, where experiments and scientific investigation relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professors in the field, where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

The farm contains 304 acres.

Campus Scene

XI. Botany.—The department of Botany occupies the western half of the third floor of Agricultural Hall. The rooms in use include a lecture room having seats for sixty-four students, a general laboratory accommodating forty-five students, a smaller laboratory for bacteriology and pathology accommodating twenty students, two small laboratories for professors and advanced students, two offices, a dark room, and store room. The general laboratory is supplied with microscopes, glassware, and the general equipment of apparatus and materials necessary for gross and microscopic work in plant morphology. The equipment for work in plant physiology and pathology has been very materially increased by the installation of much new apparatus needed for quantitative work in these subjects. These additions include autoclaves, sterilizers, incubator, drying oven, automatic water still, constant temperature baths and ovens, Kjeldahl nitrogen determination apparatus, distilling and extraction apparatus, and many smaller pieces. These accessions to the equipment provide facilities for accurate work, under controlled conditions, in the chemical phases of plant physiology and for cultural studies in bacteriology and plant pathology, and permit expansion and development of the courses offered in these subjects to a degree commensurate with their importance.

The greenhouse of the department has a floor space 30 x 110 feet, with an adjoining laboratory room 30 x 30 feet. It is used for experimental work in plant pathology and plant physiology. The facilities provided are sufficient to permit the growth of ample material for class use in these subjects as well as for the investigation of special problems by the staff.

The botanic garden contains a fairly representative collection of the native trees and shrubs of the state, and it is planned to make a collection of native medicinal plants. A portion of the garden will also be used as an outdoor experimental plat for the growing of materials employed in the work of instruction or in research.

XII. Pharmacy.—The laboratory of this department occupies the first and second floors of the annex to the chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations. The equipment for the laboratory includes a Laurent Polariscope; a Pulfrich refractometer; a vacuum distilling and drying apparatus, consisting of 1-2 horse power air pump, vacuum chamber, condenser, and Bruhl receiver for fractional distillation under diminished pressure, a three-horse power electric motor, a complete outfit for organic combustion work, and three chemical balances.

The new pharmaceutical laboratory on the basement floor of the pharmaceutical building is fitted with steam and has a full equipment for research work in pharmaceutical chemistry.

The students work in the laboratory with the professor from five to eight hours, six days in the week.

On the third floor is located the lecture room, store room, and drug mill room.

XIII. Horticulture.—The plantings on the grounds of the department, and those under its supervision, consisting of orchards, vegetables, small fruits, vineyard, ornamental shrubs, and trees, afford opportunities for practical instruction. In addition there are well appointed and modern greenhouses, with ample, well-lighted and well arranged laboratory affording further facilities for practical instruction in grafting, budding, seed germination, transplanting, forcing, spray mixing, fertilization, grading, packing, canning, etc. Accurate experiments in the culture of various fruits and vegetables adapted to this climate are constantly in progress. The department library, bulletin files, and other equipment are accessible to advanced students under the usual regulations.

XIV. *Entomology.* The department of Entomology is well equipped with apparatus for the microscopic work in entomological subjects. An excellent equipment for photographic and photomicrographic work is provided and instruction in these subjects will be given as occasion may arise. The laboratory work is closely related to the lecture work in most cases. Special attention is given to the structure and classification of insects, designed especially to familiarize the student with the principal groups in which insects are divided, and to give a basis for the selection of a proper method of treatment for their control.

The laboratory work includes also practical exercises in the preparation of the most important insecticides with proper types of constructing apparatus for applying various insecticides, and in a general way, making the student familiar with practical insecticidal work. There are also various exercises in the collection of insects and in the study of various pests which occur in the vicinity.

A reference library containing many general works upon entomology and important publications of the national bureau of entomology and of the state experiment stations is always accessible to students.

XV. Animal Husbandry.—The animal husbandry farm contains about 260 acres; upon this farm is a dairy barn, which accommodates eighteen cows, and a beef cattle shed. The students visit the barns and sheds with the instructors and are thus afforded an opportunity to study the various breeds of live stock and to do stock judging work. In addition to the pure breeds of cattle, and swine upon the farm, there are always graded and scrub animals, which are used in experimental work in feeding, breeding, etc. All of this stock is used in instructional work.

ACADEMIC WORK.

XVI. History.—All advanced work in history is conducted by the laboratory method. This plan has been successfully employed in the junior, the senior, and the graduate classes. A large and well lighted room has been set apart for this work in the new library building, where all the resources of the rapidly growing library are easily accessible. This room is equipped with maps, diagrams, charts and suitable tables and chairs. The library is a depository for all government publications. These and other books on American history, with which it is well supplied, offer abundant material for research work in the history of our country. The publications collected by the experimental station constitute valuable material for study in industrial history.

XVII. Physics.—The physical laboratory occupies two rooms, one of these being permanently darkened for experimental work in light. It is equipped with numerous standard instruments of precision, such as verniers, micrometers, cathetometers, an horizontal comparator, a Kater's revision pendulum, balances, etc., and a quantity of minor apparatus. Recently there have been added a concave grating spectograph, a large induction coil of 12-inch spark, and other apparatus of value.

XVIII. Military Tactics.—Instruction in this department is given in conformity with the act of Congress. Students receive the benefit of regular military drill, and in addition, the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties. The department is supplied with cadet rifles and accoutrements for the corps.

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

XIX. Physiology and Veterinary Science.—The veterinary department occupies a separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, thoroughly equipped laboratories for work in bacteriology, milk and meat inspection, and with museum containing skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

There is a separate dissecting room with cement floor and north roof light, constructed especially for this department. This laboratory is used by the professor and students each afternoon for three months.

BUILDINGS.

The frontispiece is a representation of the Main Building. This building is 160 x 71 feet and contains forty-five rooms. It contains lecture rooms, administration offices, physical laboratory, museum, armory, etc.

LANGDON HALL.

This is a two-story building 90 x 50 feet. The second story is the audience hall, used for commencement and other public occasions.

ELECTRICAL AND MECHANICAL LABORATORY.

The first story of Langdon Hall is appropriated to the laboratory of first year wood work in mechanic arts.

The machine shop, forge shop, foundry, and boilers are installed each in separate buildings. A handsome building, two stories in height, pressed brick and stone trimmings, has been recently constructed for occupation by the power plant on the first floor and by the pattern making department on the second floor. The dynamo laboratory occupies a separate building.

BROUN ENGINEERING HALL.

The alterations and additions to the William LeRoy Broun Engineering Hall were completed and the building occupied in September, 1910. The finished structure is 250 feet long, 50 to 90 feet deep, and three and four stories in height, enclosing a floor area of 43,500 square feet. In construction this building is practically fire proof and

Chemical Laboratory

in exterior design conforms in general to the other buildings on the campus. The walls are laid up in selected red brick, with limestone and terra cotta trimmings.

Office, lecture rooms, and laboratories for the departments of mechanical, electrical, mining and civil engineering, machine design and drawing, are located within this building, and all the interior accommodations are especially arranged to facilitate the special work of each department.

This building, an illustration of which appears on a preceding page, was designed and superintended by the department of architecture.

CHEMICAL LABORATORY.

As shown on the opposite page, this is a two-story structure, 40 x 60 feet, with a rear projection, 35 x 60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and extra terra cotta ornamentation.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building, containing rooms and laboratories for the department of pharmacy.

The chemical laboratory for the agricultural experiment station occupies a building 60 x 26 feet, and is appropriated exclusively for chemical investigation and research.

SMITH HALL.

The Otis D. Smith Dining Hall, constructed of stone and pressed brick is two stories in height, and one hundred and forty feet in length. It will accommodate three hundred in the dining hall, and forty in the dormitory above. The style is semi-colonial.

CARNEGIE LIBRARY.

The library building is a handsome structure of classical outline monumental in its general effect. It is presented in an accompanying cut.

AGRICULTURAL BUILDING.

A handsome and commodious building is occupied by the departments of (1) agriculture, (2) horticulture, (3) botany, (4) entomology, and (5) animal husbandry, together with a separate set of buildings for practical work in each of these departments. It is the general opinion that there is no superior, if equal, group of buildings for agricultural purposes in the South. The building is three stories in height and is constructed of pressed brick with stone trimmings.

GRADUATES

CLASS OF 1913

HONORS

Members of the Senior Class who attain distinction with a grade of 95 per cent. are graduates with Highest Honor. Those who attain a distinction with a grade of 90 per cent. and less than 95, are Graduates with Honor. Those who attain less than 90 per cent. and more than 60 per cent. are Graduates.

DEGREES

Bachelor of Science

GRADUATES

Fritz Thomas Ambrose	Bibb
William Webster Bagley	Georgia
William Dalton Barton	Walker
Andrew Jackson Bethea	Marengo
Henry Maddox Brittain	Randolph
Royden Wendell Carter	Limestone
Phoebe Cary	Lee
Walter Payne Christian	Shelby
William Thomas Clearman	Lamar
William Harvey Cogswell, Jr.	South Carolina
Lloyd Denton Cole	Randolph
David Lee Cotton	Georgia
Francis Bernard Coyle	New York
Othmar Kendrick David	Georgia
Samuel Moore Dillard	Madison
Ernest Archibald Dixon	Mississippi
Robert Emmett Dixon	Sumter
Lemuel Alvin Edmonson	Morgan
Jesse Eugene Emmons	New Mexico
Lester Erastus Evans	Georgia
Calder Willingham Finney	Georgia
Henry Grady Floyd	Lee
Charles Walker Frederick	Marion
Emory Elgin Fry	Texas
Oliver Ira Gaines	Jackson
Phillip Benjamin Goldstein	Jefferson
Hugh Cary Hanlin	Colbert
Robert Franklin Harrison	Madison
Harvey Curtis Heath	Coffee
Alexander Stanton Hill	Jackson

Daniel Franklin Hixon	Bullock
Chalmers Duke Horne	Florida
Thomas Clarence Izard	Limestone
Arlandus Leon Jerdan	Franklin
Taylor Goodwin Jones	Marengo
John Albert Key	Florida
Joseph Edwin Lacey	Jefferson
Oscar Emory Littleton	Montgomery
Jonathan Bell Lovelace	Escambia
Jefferson McCord	Coosa
Samuel Lucas McDowell	Wilcox
William Albert McMurray	Franklin
Emery Tyler Motley	Randolph
Oliver Clark Owsley	Elmore
John Burton Pennington	Lamar
Frederick Eugene Pickett	Bullock
Marvin Pipkin	Florida
Benjamin Patrick Poyner, Jr.	Dale
Carl Edward Pritchett	Clarke
Irvin Talton Quinn	Marion
Harry Crispe Sessions	Wilcox
Boyd Shaver	Montgomery
William Edward Shivers	Shelby
Henry Turner Spence	Georgia
Ernest Henry Standifer	Tuscaloosa
Solomon Everett Stein	Limestone
Clifford Marvin Stodghill	Randolph
Derwood Lee Taylor	Lee
Homer Bernard Tisdale	Conecuh
John Penn Tomberlin	Florida
Charles Curry Vaughan, Jr.	Lauderdale
Adiel Ernest Ware	Georgia
Claud Wright Watson	Wilcox
Charles Porter Wright	Lee
Hugh Gardner Zeigler	Sumter

GRADUATES WITH HONOR

Harris Mitchell Baker	Georgia
Aldo Francis Antonio Castagnoli	Bibb
Claude Everett Edmiston	Florida
Henry Harmon Heine	Talladega
Robert Curry Lett	Greene
Isaiah Daniel Lewis	Bibb
Victor Wallace Lewis	Bibb
Rupert Alonzo McGinty	Jefferson
James Alexander McLeod	Houston

Judson Eckford Moses	Marion
Frederick Moss Nelson	Franklin
Ralph Waldo Riddle	Jefferson
John Gordon Sparkes	Jefferson
Dee Granville Sullins	Marion

GRADUATE WITH HIGHEST HONOR

George Vaughan Stelzenmuller	Baldwin

GRADUATE IN PHARMACY (PH. G.)

GRADUATES

Samuel Faucett Anders	Tuscaloosa
Massey Palmer Bedsole	Clarke
John Mozelle Blanton	Florida
Howard Milton Boyd	Lee
Elmer Bussey	Morgan
Julius Lamar Greene	Macon
Harry Lee Jackson	Marengo
John Henry Josey	Covington
Henry Lansberger, Jr.	Jefferson
Terry McCall McPherson	Lee
Frank Tyre Manley	Randolph
Paul Molyneux	Baldwin
Hillary Herbert Moorer	Conecuh
James Harvey Stacey	Monroe
Edward Boyd Sutton	Georgia
John Gilbert Watkins	Fayette
Hiram White	Baldwin
Samuel Landrum Wood	Henry

DOCTOR OF VETERINARY MEDICINE (D. V. M.)

GRADUATES

Lewis Edgar Beckham	Hale
Hancel William Caldwell	Lee
McElroy Dean	Tallapoosa
John Isaac Handley	Clay
Samuel D. Haynie	Lee
Lee Ryan Kendrick	Dallas
John Howard Leonard	Tennessee
John Perry Major	South Carolina
Edgar Delon Miley	Dallas
William Waller Parrish	Lee
Lamar Fontaine Pritchett	Clarke
Samuel Watson Sullivan	Lowndes

POST-GRADUATE DEGREES

MASTER OF SCIENCE

Frances Camp Duggar	Lee
Milner Hubbard Eskew	Dallas
Joel Clarence Ford	Georgia
Thomas Burton Meadows	Cullman
Jemison Mims Moseley	Dallas
Willis Belmont Nickerson	Tallapoosa
Alfred Wade Reynolds	Barbour
Charles Coleman Thach, Jr	Lee

PROFESSIONAL DEGREES IN COURSE

CIVIL ENGINEER

Finley McCorvey Grissett	Georgia
Raymond Grover Ridgely	Florida

ELECTRICAL ENGINEER

John Russell Liddell	Wilcox
John Emmett Pitts	Russell
Chester A. Smith	Michigan

DEGREES FOR PROFESSIONAL WORK

CIVIL ENGINEER

David King Caldwell	Elmore
Roger Barton McWhorter	Tennessee

ELECTRICAL ENGINEER

Miller Reese Hutchison	New York
Fletcher Jackson Thagard	Bullock

DISTINGUISHED STUDENTS

SESSION 1912-1913

Students who receive a grade of above 90 per cent. and less than 95 in three studies in the Freshman Class, in four in the Sophomore Class, five in the Junior, and in six in the Senior, are distinguished for excellence in scholarship, and are awarded Certificates of Distinction. Those who receive a grade above 95 per cent. are awarded Certificates of Highest Distinction.

FRESHMAN CLASS

DISTINCTION

John Henry Arnold	Etowah
Richmond Young Bailey	Chambers
Wyly McGehee Billing	Montgomery
George Roy Corcoran	Russell
Vernon James Douglass	Jefferson
Roland Macon Fricke	Marshall
Reynolds Jennings Hamilton	Greene
Arnold Edmund Hayes	Jefferson
Andrew Orestes Jackson	Pike
Henry Lord Page King	Georgia
Charles McLendon	Georgia
Clifford Brasswell McManus	Georgia
Edward Mitchell Manning	Coosa
Roy William Mathison	Jefferson
Carl Dent Montgomery	West Virginia
Lucius Rives Owsley	Elmore
James Thomas Roberts	Marshall
George Henry Stewart	Coosa
Gilmore Clark Williams	Cullman
Samuel Andrew Wingard	Montgomery

HIGHEST DISTINCTION

Ambrose Camp Duggar	Lee
Elza Bland Holloway	Autauga
Cyrus Edson Newman	Coosa
Edward Ward Smith	Lee
Leonard Lyon Watkins	Choctaw

SOPHOMORE CLASS

DISTINCTION

William Emmet Ayres	Lamar
Albert Bonds	Greene
Robert Dennis	Pike
Clyde Augustus Donehoo	Blount

Berry Owen Driver, Jr.	Randolph
William Robert Ellett	Madison
Charles Maynard Farrow	Tallapoosa
Davis Adolphus Gammage	Barbour
Daniel DeKalb Gibson	Clay
Philip Heyman Hagedorn, Jr	Georgia
Arthur Brooks Hale	Jefferson
Cosette Woodley Harrison	Montgomery
Crawford Buchanan Hawkins	Mississippi
James McCoy Oliver	Tallapoosa
John Asa Simms	Sumter
Frances Victoria Steele	Lee
Hassie Earl Terrell	Lee

HIGHEST DISTINCTION

Edward Amende Allen	Jefferson
Wilbur Fisk Littleton	Montgomery
Joel Philip Melvin	Tennessee
John Boyd Overstreet	Kentucky
James Herbert White	Tallapoosa

SPECIAL STUDENTS

DISTINCTION

William Aurelius Hewes	Jefferson
Samuel Caswell Maples	Jackson
George Arthur Pfaffman	Indiana
Clarence Dudley Smalling	Georgia

JUNIOR CLASS

DISTINCTION

William Edward Arnold	Florida
Edwin Fry Barry	Texas
Cleburne Ammen Basore	Jefferson
Marcus Williams Crenshaw	Limestone
Charles Washington Culpepper	Randolph
William Bernie Farrar	Marshall
Enoch Dortch Fly	Jefferson
Augustus Tompkins Graydon	South Carolina
Curtis Crawford Harper	Jefferson
William Bowen Henderson	Montgomery
George Washington Holley	Tuscaloosa
John Rush Lester	Georgia
Lester Hickman Lewis	Bibb
McClellan Ratchford	Chambers
Frank Park Samford	Montgomery
William Burley Tisdale	Florida

HIGHEST DISTINCTION

Robert Edward Herring	Tennessee
Wendell Holmes Tisdale	Florida

CATALOGUE OF STUDENTS

SESSION 1913–1914

GRADUATE STUDENTS

Joseph Calloway, Jr	Montgomery
Alton R. Gissendanner	Dale
Daniel Franklin Hixon	Bullock
Oliver Lynch Howell	Tennessee
George Alston Kellum	Shelby
Isaiah Daniel Lewis	Bibb
Jonathan Bell Lovelace	Escambia
James Arthur Parrish	Randolph
John Emmett Pitts	Russell
Ralph Waldo Riddle	Jefferson
Walter Monroe Sellers	Pike
John Gordon Sparkes	Jefferson
George Vaughan Stelzenmuller	Baldwin
Clifford Marvin Stodghill	Randolph
Derwood Lee Taylor	Lee
Homer Bernard Tisdale	Conecuh
Claud Wright Watson	Wilcox
Claud Rodolphus Wood	Franklin
Benjamin Allen Wooten, Jr	Marengo

SENIOR CLASS

Ernest Clifton Adkins	Jefferson
Odis Dennitt Allbritten	Marshall
Charles Jefferson Allen	Lee
Porter Weakley Allen	Jefferson
Samuel Faucett Anders	Tuscaloosa
William Edwin Arnold	Florida
Andrew Hill Barnett	Bullock
Edwin Fry Barry	Texas
Cleburne Ammen Basore	Jefferson
James Edward Bazemore	Coosa
Theodore Russell Benning	Georgia
Robert Ferdinand Angelo Benson	Mobile
Benjamin Paul Blasingame	Lee
Albert Edward Booth	Florida
Frank Ewell Boyd	Chambers
Rives Hood Boykin	Mobile
Otto Brown	Choctaw
John Luther Bryan	Lee
Peter DeMarkus Burks, Jr.	Georgia

William Wallace Caldwell	Lee
James Reid Campbell, Jr.	Macon
Henry Gray Carter	Georgia
William Taylor Cheney	Marengo
Charles Hadley Cooper	Georgia
Alexander Stephens Corgill	Marengo
Marcus Williams Crenshaw	Limestone
Charles Washington Culpepper	Randolph
John Marvin Davis	Jefferson
Martin McClenon Davis	Georgia
Frank Richard Deakins	Tennessee
Harry Price Dixey	Louisiana
Benjamin Ellsworth Evans	Lee
Herschell Heyward Everette	Georgia
Herbert Houston Farr	Jefferson
William Bernie Farrar	Marshall
Henry Roy Faucett	Bibb
Arthur Trezevant Feaster, Jr	Jefferson
Millard Woodfin Fendley	Blount
Enoch Dortch Fly	Jefferson
Arthur Crawford Foster	Cleburne
Roger Jerome Franklin	North Carolina
Edward Lawrence Gilder	Montgomery
Homer Henry Gossett	Georgia
Augustus Tompkins Graydon	South Carolina
Cecil Stewart Grimes	Georgia
Robert Lawrence Groover	Georgia
Gustave Adolph Hanson	Florida
Joe John Haralson	Lee
Curtis Crawford Harper	Jefferson
Arthur Zellars Heard	Lee
John Jesse Heard	Lee
William Bowen Henderson	Montgomery
Robert Edward Herring	Tennessee
George Washington Holley	Tuscaloosa
Charles Levi Hollingsworth	Talladega
Louis Holbrook Howard	Mississippi
Lemuel Jasper Howell	Marion
Andrew Hagan Jackson	South Carolina
Percy Lee Jones	Lauderdale
Henry Grady Kelly	Walker
Marvin Henry Killingsworth	Shelby
Richard Hallonquist LaRoche	Florida
James Coleman Lee	Jefferson
John Rush Lester	Georgia
Lester Hickman Lewis	Bibb
Eugene Mason Lindsey	Georgia

James Jackson Lovelace	Escambia
Gayle McFadden	Florida
Herbert Marshall Martin	Florida
Robert Morris Martin	Marion
Hugh Lester Mayers	Lamar
Manly Foster Meador	Marengo
Ivan Wilfred Miller	Walker
Paul Minnis	Mobile
Porter Mixon	Houston
Charles David Moon	Coosa
Charles Benton Moore	Dallas
Lorenzo Daniel Morgan	Dallas
Alexander Edwin Morrow	Tuscaloosa
Roland Hall Neel	Georgia
James Kirk Newell	Tallapoosa
Charles Stott Noble	Calhoun
Reb Cleveland O'Briant	Lamar
John William Pace, Jr	Lee
William Ware Palmer	Lee
Loomis Gay Pearson	Randolph
Donald Rant Pill	Walker
John Llewellyn Prosser	Mississippi
Lawrence Whetstone Rainey	Talladega
McClellan Ratchford	Chambers
John Enoch Riley	Jefferson
George Seaman Riser	Jefferson
Hamilton Manoah Robertson	Tennessee
Frank Park Samford	Montgomery
Otto Karthaus Seyforth	Madison
Guy Maxwell Spearman	Walker
Thomas James Stephenson	Dallas
Chester A. Stewart	Fayette
Harry Humphrey Stirling	Jefferson
Redding Stancill Sugg	North Carolina
Charter Howard Taylor	Autauga
Annie Elizabeth Terrell	Lee
Arthur Joel Thigpen	Lee
James Henry Thigpen	Lowndes
William Burley Tisdale	Florida
Wendell Holmes Tisdale	Florida
Henry Asa Vaughan	Marengo
Madison Arnold Veazey	Chambers
George Sidney Waits	Covington
Claude Hunter Wallace	Jefferson
James Sebastian Watts	Walker
Wilton Wendell Webb	Lee
Frederick William Wendt	Montgomery

Joseph Madison White	Montgomery
William Lemuel White	Marion
Bryan Watkins Whitfield	Marengo
Robert Sidney Whitfield	Hale
Edgar Eldred Williams	Elmore
John Winfield Williams, Jr	Lee
Frank Whitaker Wilmore	Lee
Walter Herren Wilson	Lee
Frank Axon Winn, Jr	Florida

JUNIOR CLASS

Edward Amende Allen	Jefferson
Glenn Andrews, Jr	Montgomery
Austin Elser Arthur	Marion
William Emmet Ayres	Lamar
Jackson Frederick Bazemore	Coosa
Joe Marion Beutell	Georgia
Albert Bonds	Greene
Oscar Carson Bottoms	Marion
John Robert Boyle	Jefferson
James Terrill Brazelton	Jefferson
Andrew Jackson Brooks	Lowndes
William Hayden Brooks	Jefferson
Pressley Bryant	Wilcox
John Willis Campbell	Marshall
Arvie Carnes	Marion
Ernest Carnes	Marion
Elwyn Allen Cary	Lee
Charles Walter Castleman	Talladega
Frank Gregory Charlton, Jr	St. Clair
Frederick Emmet Cooper	Calhoun
Byrne Cross	Hale
Joseph Richard Crum	Escambia
Joseph Alpha Cullars	Lee
Clarence Bradford Dawson	Montgomery
Robert Dennis	Pike
William Reese Dillard	Georgia
Clyde Augustus Donehoo	Blount
Edgar Elisha Downing	Escambia
Berry Owen Driver, Jr	Randolph
Frances Alexander Duncan	Lee
James Archibald Duncan, Jr	Georgia
Arturo Elizondo	Mexico
Otis Douglas Ellard	Jefferson
Hillary Herbert Elliott	Shelby
Paul Edward Engle	Jefferson

Charles Maynard Farrow	Tallapoosa
William Wescott Fetner	Georgia
Julius Albert Fincken	South Carolina
Jesus Bartolo Galan	Mexico
Davis Adolphus Gammage	Barbour
Condie Pugh Gaston	Wilcox
Daniel DeKalb Gibson	Clay
Charles Hereford Gilmour	Jefferson
Hunter Grant	Barbour
Philip Heyman Hagedorn, Jr	Georgia
Arthur Brooks Hale	Jefferson
Arthur Lee Hall	Florida
Wilmer Eugene Hall	Morgan
Alfred Lee Harrell, Jr.	Chambers
Cosette Woodley Harrison	Montgomery
Crawford Buchanan Hawkins	Mississippi
Fred Hollis Haynie	Lee
James Thomas High	Marshall
Kirk Theron Holley	Marion
Robert Maull Howe	Lee
Clarke Upham Irvine	Mobile
Robert Brice Johnston	South Carolina
Thomas McDonald Jones	Coosa
John Moses Keith	Lee
Roscoe Dean Kershaw	Jefferson
Lee Eugene Kimball	Lee
Fabius Henry Kohloss	North Carolina
Robert William Lawton	Florida
Wilbur Fisk Littleton	Montgomery
William Charles Louisell	Mobile
Basil Manley Lovelace	Escambia
Claud Mortimer McCall	Escambia
Ellison Smyth McKissick	South Carolina
Clyde Fuller McLendon	Montgomery
Homer Angelo MacRae	Georgia
Homer Hosea Ballou Mask	Lee
Joel Philip Melvin	Tennessee
James Foy Middlebrooks	Barbour
Robert Forney Middleton	Etowah
Leslie Albert Miller	Walker
Jay Millican	Marion
Charles Fletcher Moreland	Texas
George Lewis Moulton	Mobile
Harrison Palmer Mullin	Lee
James William Mullin	Macon
Andrew Jackson Noble	Elmore

James McCoy Oliver	Tallapoosa
John Boyd Overstreet	Kentucky
Lex Sneed Owens	Pike
George Allen Patterson	Mobile
Leonard Graham Pearce	Autauga
Millard Hosmer Pearson	Randolph
Jack Noble Peebles	Montgomery
Pierce R. V. Pettis	Clarke
Myrt Warren Pouncey	Escambia
Nelson Wilmer Proctor, Jr	Jefferson
William Gregg Robins	Wilcox
William Glenn Rushing	Escambia
Hardy Booker Sandlin	Marion
Frederick Hart Savage, Jr.	Wilcox
Anthony Sayre	Montgomery
Warner Noble Scoville	South Carolina
John Wendolin Seibold	Marshall
Albert Vertner Sevier	Louisiana
Cleveland Gilespie Sharpe	Morgan
Thomas Ledyard Sharpe, Jr	Walker
James Asa Simms	Sumter
Fenton Reid Smith	Marengo
Thomas Chilton Smith	Jefferson
William Jackson Smith	Montgomery
Philip Nicholas Sowell	Escambia
Simeon Stevens Sparkman	Florida
Joseph Wheeler Starkey	Colbert
Frances Victoria Steele	Lee
Charles Jefferson Stewart	Bibb
Louis Edwin Stotlar	Illinois
John Dodson Summers	Lee
Lonnie Polk Sweatt, Jr	Jefferson
Hassie Earl Terrell	Lee
Furman Leffel Tucker	South Carolina
Arthur Pearce Turner	Colbert
Homer Herd Turner	Colbert
Edward Leroy Tuttle	Florida
Ira Davis Vail	Greene
Albert Weaver	Escambia
Felix Branyon White	Marion
James Herbert White	Tallapoosa
Lawrence White	Hale
Robertson Wilkins	Georgia
Samuel Aaron Burr Wilkinson	Geneva
Joseph Paullyn Wilson	Pike
Gautier Conde Yancey	Macon
Oliver Eubert Young	Choctaw

SOPHOMORE CLASS

Robert Lee Adams	Lee
Saul Perry Adelson	Jefferson
John Gill Anderson	Tennessee
James Warren Andrews	Montgomery
Hayne Coker Appleton	DeKalb
John Dunklin Ashcraft	Lauderdale
William Elmer Bachelor	Elmore
Richmond Young Bailey	Chambers
James Arthur Bates	Chambers
Blanchard Battle	Georgia
John Tonice Belue	Lauderdale
Frank Hardie Bessellieu	Georgia
George Woodbury Farrar Bibb	Texas
Wyly McGehee Billing	Montgomery
Ralph Carl Blach	Jefferson
Roger McIver Bostick	Mississippi
Thomas Massie Boyd	Texas
Guy Brindley	DeKalb
Max Garrett Brittain	Georgia
William Emmette Brooks	Escambia
James Rosby Brown, Jr.	Florida
Joseph Davenport Browne, Jr.	Tennessee
Cyril Kenneth Bryan	Jefferson
Joseph Elliott Bumby	Jefferson
William Alexander Burns	Talladega
Green Berry Bush, Jr.	Choctaw
Elliott Benjamin Calloway	Montgomery
Robert Emmett Cammack	Clarke
Edmund Brown Campbell	Tennessee
Robert Ezekiel Campbell	Sumter
Preston Holcombe Cannady	Clarke
William Huxley Carter	Florida
Jack Silas Case	Butler
Thomas Holmes Chapman	Dallas
Thomas William Clift	Madison
Frank Cook	Wilcox
George Roy Corcoran	Russell
William Davis Crawford	Macon
Richard Henry Cunningham	Choctaw
William Theodore Davidson	Georgia
Berrien Walker Davis	Georgia
Lee Irwin Davis	Mobile
Posey Oliver Davis	Limestone
Leo Donovan	Dallas

Charles Bryant Douglas	Barbour
Vernon James Douglass	Jefferson
Ambrose Camp Duggar	Lee
Thomas Edmund Duncan	Lee
Joseph William Edgar	Mobile
Perry Jackson Edwards	Morgan
Herbert Lee Evans	Hale
Harry Gordon Farris	Etowah
John Charles Ferris	Georgia
Seth Jordan Floyd	Lee
Leslie Bruce Flurry	Tallapoosa
William Julius Foxworth	Clarke
Roland Macon Fricke	Marshall
Freeman Miree Fuller	Perry
Elmer Brooks Glass	Marengo
William Wilkinson Goode	Wilcox
Edwin Perry Grant	Barbour
Richard Wilmer Grigg	Montgomery
Legare Hairston	Marengo
Arnold Edmund Hayes	Jefferson
Louis Oppenheimer Hertz	Montgomery
Eugene Louis Hilliard	Texas
Lovick Pierce Hodnette	Macon
Daniel Webster Hollis	Henry
Elza Bland Holloway	Autauga
Montgomery Lamar Howe	Lee
Andrew Orestes Jackson	Pike
Joseph William John	Dallas
Clarence West Johnson	Calhoun
Ira Boon Kerlin	Tallapoosa
Henry Lord Page King	Georgia
Captain Tullis Knight	Barbour
Roy Ratchford Kracke	Marshall
George Gelzer Lang	Georgia
William Henry Langhorne	Perry
Everette Lay	Etowah
Glenn Liddell	Wilcox
Nelle McCants	South Carolina
Edward Philip McCormac, Jr.	Texas
Paul Sioussat McCormick	Mobile
Laurrie Artemus McCranie	Florida
Alva Pinkston McCrary	Georgia
Russ Wilbur McDuffie	Geneva
Charles Haten McLendon	Russell
Clifford Brasswell McManus	Georgia
Lawrence Marvin McRae	Fayette

Edmund Mitchell Manning	Chilton
Charles Bartley Martin	Jefferson
Albert Young Masters	St. Clair
James Weston Miller	Louisiana
William Thomas Mills	Jefferson
Robert Fred Mims	Jefferson
James Caldwell Mohns	Jefferson
John Daniel Moore	Bullock
John William Moore	Elmore
Sarah Evelyn Moore	Lee
Emile Nelson	Mobile
Cyrus Edson Newman	Coosa
Ed Cranmer Newton	North Carolina
William Wyman Owens	Pike
Lucius Rives Owsley	Elmore
Woodie James Pace	Calhoun
Robert Ira Patterson	Walker
William Charles Payne, Jr	Tennessee
Albert Mason Peck	Morgan
Joseph Bancroft Perry	Jefferson
Wilton Burton Persons	Montgomery
James Goggins Peterson	Coosa
William Henry Philpot, Jr	Russell
Frank Poole	Butler
Dempsey Jones Ray	Georgia
James Thomas Roberts	Marshall
Atlee Sample	Morgan
William Clinton Sandlin	Tallapoosa
Robert Savage	Cherokee
Otto Meinhardt Schomburg	Georgia
Frederick Gordon Sholes	Jefferson
Ernest Slager	Tennessee
Richard Hawley Slider	Mississippi
Claude Headden Smith	Georgia
Edward Levert Smith	Georgia
Edward Ward Smith	Lee
Gordon Roysce Smith	Geneva
Jasper Newton Smith, Jr.	Georgia
James Terry Smith	Montgomery
Percy Reynolds Smith	Jefferson
Grady Steely	Geneva
George Henry Stewart	Coosa
Carl Laten Stuckey	Mississippi
Alfred Haskell Taber	Montgomery
Edwin Price Taylor	Mississippi
Francis Marion Taylor	Lee

John Ewing Taylor	Butler
Thomas Sparks Teabeaut	Georgia
Samuel Fuller Teague	Jefferson
Thomas DeWitt Thurman	Talladega
Augustin Tovar	Peru
Alonza Fears Truett, Jr.	Georgia
Carroll Payne Tye	Georgia
James Eidson Varner	Bullock
Edward Adolphus Wagner	Texas
James Alexander Walker	Montgomery
Samuel Thomas Waller	Macon
James Hubert Walls	Marshall
DeWitt Talmage Ware	Randolph
George Lawrence Washington	Cuba
Leonard Lynn Watkins	Choctaw
Louis Truitt Wells	Pickens
Ralph Lankford White	DeKalb
James David Williford	Lee
Robert Fleming Williford	Lee
Eugene Hewitt Wilson	Blount
Hugh McCalla Wilson, Jr.	Lee
Samuel Andrew Wingard	Montgomery
Hamlin Varney Witham	South Dakota
Ramona Middleton Wood	Marion
John Garland Woodall	Jackson
David A. Woodard	Louisiana
Andrew Jackson Wynne	Marengo
Henry Edwin Yakel	Texas
George Washington Yarbrough	Randolph
John Fletcher Yarbrough	Houston

FRESHMAN CLASS

John Cooper Adams	Morgan
William Chester Alexander	Russell
Irvin Gravely Ammen	Jefferson
Linnie Ayres	Lamar
Thomas William Bailey	Jefferson
Harry Bates	South Carolina
Millard Filmore Berry, Jr	Elmore
Walter Gustavus Bevill	Choctaw
Thomas Wood Blanchard	Jefferson
Bernard Irwin Bostwick	Georgia
George Randolph Bowling	Tallapoosa
Milton Sprott Brislin	Dallas
Henry Ashton Brosnaham	Florida
James William Burgin	Jefferson

Ira Isaac Canterbury, Jr	Marengo
Ansley LaFayette Carmichael	Coffee
James Arthur Chappell	Jefferson
Daniel Wilmer Clarke	Geneva
Stonewall Jackson Cleveland, Jr	Mobile
Claudius Harper Cole, Jr	Randolph
Herbert Christopher Collins	Geneva
Dominique Francis Cooper	Calhoun
William Worth Corcoran	Russell
Frank Ellis Cranford	Walker
Mary Glenn Crenshaw	Lee
Alvan Christy Davis	Geneva
Ernest Linwood Deal	Tuscaloosa
Albert Hugh Dumas	Lee
Julius Eagle	Dallas
Annie Lee Edwards	Lee
Harrison Bartow Emerson	Eutaw
Herbert Talley Farris	Georgia
Bert Sheppard Fitzpatrick	Montgomery
Louis William Fogarty	Florida
Joseph Marshall Foulks	Mississippi
Annie Meador Frazier	Lee
Elford Betty Goodlett	Mississippi
William Franklin Green	South Carolina
Joseph Best Grimsley	Georgia
Henry Haigler	Jefferson
Maurice Emmette Harvey	Blount
Edward Beverly Henry	Lee
John William Johnston	Blount
Julius Jones, Jr	Coosa
James Marion Kelly, Jr	Georgia
Admiral Dewey Kilgore	Randolph
Edgar Kimball	Lee
George Lampros	Montgomery
William Robert Lassiter	Russell
Andrew Dowdell Lipscomb	Lee
Charles Idylle Lucas	Randolph
William Bernard McAtee, Jr	Mobile
James Edgar McCurdy	Escambia
Neil Carpenter Miller	Montgomery
Frank Phillips Milstead	Elmore
James David Monk	Barbour
Merida Kendrick Monk	Barbour
Claud Dowling Morris	Chambers
Frederick Martin Mullino	Georgia
Roy Clarke Oliver	Tallapoosa

Samuel John Oliver, Jr	Tallapoosa
William Edgar Park	Randolph
William Oliver Parker	Jefferson
William Albert Penny	Etowah
Wallace Screws Pitts	Montgomery
John Carew Powell	Montgomery
Fines Homer Prendergast, Jr	Texas
Bryan Pritchett	Clarke
James Frederick Pruett	Russell
Walter Hugh Roberts	Baldwin
Joseph Posey Robertson	Fayette
Cary Cox Carlisle Robinson	Lee
Robert Pearson Salter	Greene
Yetta Glenn Samford	Montgomery
Bradley Johnson Saunders	Jefferson
Harry Berry Seybt	South Carolina
John Parker Shaffer	Tallapoosa
Will Murton Shannon	Jefferson
Sylvester Guinn Sharit	Jefferson
Bulford Guy Sharp	Randolph
Clyde Heard Shepherd	Tallapoosa
Everette Shepherd	Jefferson
Wilbur Thomas Shinholser	Georgia
Enoch Judge Sims	Russell
Ralph Thomas Sims	Georgia
William Lee Smith, Jr	Jefferson
Harry Peckham Sparkes	Jefferson
Alexander Clifton Stewart	Escambia
William Augustus Stickney	Calhoun
Eunice Rebecca Stodghill	Lee
Philip Avary Terrell	Lee
Richard Hartwell Thach	Lee
James Andrew Thigpen	Lee
William Marcus Thigpen	Russell
Caxton Harold Tichenor	Calhoun
George Samuel Ticknor	Georgia
Arthur Brownlow Tissington	Louisiana
Henry Philip Trawick	Lee
Conrad Grey Wall	Walker
John Meriwether Ward	Green
Lamar Mims Ware	Georgia
Harold Smith Watkins	South Carolina
James Withrow Webb	Tuscaloosa
Leonard Lee Welch	Randolph
Newell Brown Wentworth	Mexico
Ross Underwood Whiteside	Calhoun

Lupton Allemong Wilkinson	Jefferson
Robert Malder Williams	Russell
Wheeler Williams, Jr	Russell
Arthur Herbert Williamson	Lowndes
Shu Min Wong	China
Thomas Warren Wood	Chambers
Harry Harper Wooldridge	Barbour
Barbara Letitia Wright	Lee

DEPARTMENT OF PHARMACY

FOUR-YEAR COURSE

GRADUATE

Clifford Marvin Stodghill	Randolph

SENIOR CLASS

Samuel Faucett Anders	Tuscaloosa
Henry Roy Faucette	Bibb
James Kirk Newell	Tallapoosa
Charter Howard Taylor	Autauga
Arthur Joel Thigpen	Lee

JUNIOR CLASS

James Foy Middlebrooks	Barbour
James William Mullin	Macon
John Dodson Summers	Lee
Gautier Conde Yancey	Macon

TWO-YEAR COURSE

GRADUATE

Paul Molyneux	Baldwin

SECOND YEAR

Henry Evan Benbow	Crenshaw
Carl Busey	Monroe
Ealy Elrid Caldwell	Elmore
Clarence Bonner Hines	Wilcox
James Clinton Kent	Elmore
Ernest Clark Pope	Bibb
James Daniel Richardson	Elmore
Ethridge Bryant Thompson	Clay
James Foy Walton	Chambers
Walter Jackson Watkins	Coosa
Loather Guy Webb	Calhoun

FIRST YEAR

Louis Elmer Andrews	Dale
Cecil Charles Bean	Cleburne
Jesse Jared Coleman	Escambia
Junius Weeks Davis	North Carolina
Simpson Wright Day	Texas
William Clifford Forbes	Jefferson
James Shields Gaskell	Autauga
Robert McCluster Gaston	Talladega
Thomas Samuel Gentry	Bibb
Hoyt Greer	Cleburne
Charles Archibald Harris	Clarke
Arnouldrous Buru Hinson	Marengo
Newman Grady Hubbard	Cleburne
Simon Mathew Jones	Barbour
Edwin Lee McMillan	Wilcox
John Melville Miller	Walker
Oscar J. Mooneyham	Barbour
Clifton Evans Mosley	Mississippi
Thomas Richard Nash	Shelby
Thomas Jefferson Rayfield	Coosa
Vann Lindley Spruiell	Jefferson
Truitt Weaver	Randolph
Ira Junius Wiggins	Monroe

COLLEGE OF VETERINARY MEDICINE AND SURGERY

THIRD YEAR

Roe Ballou	Marengo
Daniel Cook, Jr.	Wilcox
John Sydney Cook	Choctaw
Monroe Sublett Esslinger	Madison
Cage Head	Shelby
William Ernest Hollingsworth	Talladega
James Karl Jones	Wilcox
Richard Irvin Kearley	Monroe
Walter Douglas McCormack	Jefferson
Arthur Storey Makin	Jefferson
Leondous Keller Ogletree	Talladega
Joseph Steven Powell	Choctaw
Edward Genearo Queral	Cuba
Walter Bivins Smith	Calhoun
James Daniel Wilbanks	Tallapoosa

SECOND YEAR

Godfrey Charles Bevan	Jefferson

Leon J. Bonner	Clay
Sanford Gollie Carter, Jr	Randolph
Leonard Martin Collins	Hale
Issachar Grady Gauntt	Tallapoosa
Travis Branch Gissendanner	Dale
Leon Charles Gruver	Montgomery
Thomas Blake Howle	Calhoun
George Douglas Ingram	Lee
Benjamin Franklin Jones	Wilcox
Herbert Byron Nixon	Calhoun
Irby Pollard	Crenshaw
William Simpson Seibold	Marshall
Roy Felton South	Blount
Frederick Steele	Lee
Charles Thigpen	Lowndes
Marvin William Williams	Lee
Vincent Brown Wright	South Carolina

FIRST YEAR

Roy Avant	Coosa
Quin Baker	Coosa
James Wyatt Boylston	South Carolina
George Lloyd Breeden	Dallas
Ernest William Bryan	Lee
Farris Eugene Butler	Crenshaw
Elmer Bernard Campbell	Marshall
Irwin Roland Cooper	Marengo
Robert Alvin Dean	Tallapoosa
Archibald Lee Faulk	Geneva
Legrand Jones Hargett	Lee
Alto Lee Johnston	Pike
Joseph Ernest Kendrick	Dallas
Edwin D. King, Jr.	Monroe
Samuel Marshall Major	South Carolina
Samuel Jones Rayfield	Talladega
Wade Hampton Reinhardt	North Carolina
Richard Kinion Roberson	St. Clair
Walter Stancel Robertson	Tennessee
Willis Charles Roycroft	Mobile
George Malcolm Steed	Wilcox
George Ellis Taylor	Jefferson
Olen Loyd Waller	Georgia
Clark Hudson Watkins	Georgia
Albert Barron Whatley	Lee
Thomas Mitchell White	Fayette

IRREGULAR STUDENTS

Charles Ray Adams	Dallas
John Cee Freeland, Jr.	Louisiana
William Henry Hayes	Henry
Burrell M. Johnson	Marengo
Robert Morgan Lambert	Monroe
George Lewis Staples	Coosa

TWO-YEAR COURSE IN MECHANIC ARTS

Hugh Wilmer Agricola	Etowah
Glenn Durwood Atkins	Lamar
Reuel Ernest Baker	Jefferson
Julian D. Beard	Choctaw
David Malphren Enslen	Elmore
Ehrman Thrasher Enslen	Elmore
Edwin Farkas	Georgia
Robert Cecil Floyd	Lee
William Claud Griswold	Bullock
Adolphus Alexander Hale	Sumter
Homer Percy Harris	Jefferson
Thomas Hiram Hill	Georgia
Ray House	Calhoun
Llewellyn Edward Hughes	Jefferson
Leon Ledyard Jeffrey	Wilcox
Neal Corbly Johnson	Colbert
Anson Jones	Georgia
Hester Marion Lewis	Bibb
Robert Charles McGuirk	Calhoun
William Franklin McLemore	Talladega
Albert Cotton McMillan	Russell
Thomas Richard Montz	Perry
Staton Gsell Possien	Baldwin
William Thomson Price	Tuscaloosa
Luther Hill Randall	Georgia
Frank Borough Reeder	Lauderdale
Joseph Robert Rosson	Cullman
Carl Sanders	Georgia
Thomas Jones Sellers	Tallapoosa
Salidon Aulius Spencer	Hale
William Rufus Turnipseed	Bullock
Alfred Benjamin Walter, Jr.	Louisiana
Burgess West	Georgia
Emmett Morgan Whatley	Hale
Walter Alexander Whatley	Lee

Paul Lee Woodson	Jefferson
Paul Worley	Florida

TWO-YEAR COURSE IN AGRICULTURE

SECOND YEAR

Edwin Early Clements	Lee
James Haywood Craighead	Perry
Walter Scott Desprez	Lauderdale
Render Ware Dowdell	Chambers
Elhanon Winchester Hall	Bullock
Frank James Inge, Jr.	Greene
Robert Payne Keyes	Limestone
George Arthur Pfaffman	Washington
Theodore Henry Rabe	Jefferson

FIRST YEAR

John Burl Braswell	Bullock
James Fell Cameron	Greene
Calvin Chalker	Houston
James Horton Chancellor	Lee
Benjamin Wood Davies	Hale
Thomas Judson Day	Dallas
George Blakey Echols	Madison
James Atwood Fleming	Montgomery
Cecil Marion Forbes	Jefferson
Edward Frazier Gresham	Autauga
Weaver Milton Jordan	Lowndes
Harry Eugene Kearley	Monroe
Adolphe LeBron	Elmore
Stewart William McCombs	Lee
William Edward McWilliams, Jr.	Jefferson
Samson Bluford Mullins	Houston
Peyton Norvell, Jr.	Walker
Leonard Levert Norwood	Walker
James Kenneth Orum	Dallas
Henry Winston Penny	Etowah
Russell Ward Phillips	Sumter
Edmond Webb Reeder	Lee
Ernest Trueman Smith	Etowah
Clinton Dodson Stovall	Walker
Howard Thames	Butler
Edgar Carlton Welles	Florida

TWO-YEAR COURSE IN APPLIED ELECTRICITY

SECOND YEAR

Rogers Williams Autry	Texas
George Davis Fulmer	Jefferson

William Theodore Heidt	Jefferson
Oliver Howard Holmes	Jefferson
Walter Lee James	Bibb
David Hammond Middleton	Lowndes

FIRST YEAR

Malvern Horrice Baker	Lee
Wiley Augustus Bateman	Florida
Robert Jennings Booth	Escambia
Forest Grady Bridges	Macon
John Wood Collins	Marengo
Jesse Wallace Drake	Lee
Duncan Lawson Houser	Jefferson
John Littleton Howard	Jefferson
Charles Winn Lee	Barbour
Richard William Lightfoot	Macon
John Oden Luttrell	Escambia
Philip Laurence O'Reilly	Franklin
William Edgar Rush	Macon
James Newton Smith	Bibb
John Robert Smith	Florida
Roy Emil Thomas	Montgomery
Robert Nelson White	Montgomery

IRREGULAR STUDENTS

Alfred Newton Adams	Tallapoosa
Walter Earnest Adams	Russell
Harry Elliott Allen	Montgomery
Benjamin Hill Andrews	Chambers
John Robert Argo	Coosa
August Harry Armbruster	Jefferson
Paul Rubens Bidez	Georgia
Louis Roderick Botsai	Jefferson
Oscar Felipe Boza	Peru
Frederick Raymond Brantley	Jefferson
Hugh Otis Burgess	Cleburne
Giles Homer Carlovitz	Mississippi
Elmer Rice Chambliss	Autauga
William Haywood Christopher	Florida
Isador Edward Cocciola	Jefferson
Benjamin Harrison Dodd	Walker
David Merrick Dowdell	Lee
John Clinton Donehoo	Blount
Thomas Roscoe Drisdale	Colbert
Guy Hazelwood Dunning	Marengo

Raymond Franklin Gibson	Georgia
Carmen Gilliam	New Mexico
David Lyon Gordon	Montgomery
Edward Samuel Gatchell	Lee
Jesse Emmett Gray	Talladega
James Edwin Hickey, Jr.	Georgia
Walter Lucian Howard	Marshall
Jack Wilson Hardie	North Carolina
Franklin Augustus Hart	Montgomery
Festus Urban Harris	Jefferson
James Augustus Hayes	Bullock
Laurence James Heatherly	Lauderdale
Felix Tankersley Horn	Crenshaw
Joseph William Hudson	Montgomery
Stephen Proctor Huger	Calhoun
Green Henry Jones	Tallapoosa
Thomas Joseph Kelly	Mobile
Herndon Kemp	Texas
John Edward Key	Chambers
Owen Mahone Liles	Escambia
William Lash Lipps	New York
Thomas Bayne Locke	Hale
Frank Wayne Lockwood	Montgomery
Thomas James McConnell	Fayette
Joseph Herkimer McCombs	Lee
John McCrory, Jr	Butler
Carl Graham McFarlin	Jefferson
Norman McNeill	Georgia
Griel Patrick McPherson	Lowndes
William Allan Marshall	Georgia
Sibbie Moore	Lee
Thomas Harvey Morrison	Cherokee
Carl Dent Montgomery	West Virginia
Elmer Chester Nelson	Jefferson
Robert Jemison Owens	Hale
Henry Williams Perry, Jr	Jefferson
Ralph Bernard Reeves	Mobile
Thomas Christopher Rives	Montgomery
Thomas Orlando Robertson	Georgia
Henry William Robinson	Conecuh
Oliver Gordon Robinson	Jefferson
Charles Walter Robles	Florida
James Donald Russell	Calhoun
Cesar Alejandro Saavedra	Peru
William Jernigan Sannemann	Jefferson
Henri Sempe	Guatemala

Ransom Davis Spann	Montgomery
Cornelius Clyde Smith	Geneva
Tempie Frances Smith	Marshall
Frank Davenport Stapleton	Georgia
William Stanley Stratford	Montgomery
James William Thompson	Jefferson
Russell Fleming Walthour, Jr.	Lee
James Wallace Whatley	Lee
William Wadsworth Wood	Jefferson
Michael Vernon Zimmerman	Jefferson

SUMMARY

Graduate Students	19
Senior Class	122
Junior Class	128
Sophomore Class	166
Freshman Class	114
Pharmacy	45
Veterinary Medicine	65
Mechanic Arts	37
Two-Year Course in Agriculture	35
Two-Year Course in Applied Electricity	23
Irregular Students	76
	830
Deduct for names counted twice	10
Total	820

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY

English	620	Geology	140
History	394	Civil Engineering	43
French	54	Structural Design	39
German	74	Electrical Engineering	104
Latin	110	Mechanical Engineering	186
Mental Science	16	Mining Engineering	12
Political Economy	110	Architecture	38
Mathematics	521	Machine Design	86
Chemical Laboratory	185	Drawing	289
Chemistry	464	Descriptive Geometry	112
Agriculture	269	Mechanic Arts	333
Animal Husbandry	320	Mineralogy	26
Physics	464	Physiology	167
Botany	197	Veterinary Science	107
Entomology	49	Pharmacy	68
Horticulture	120	Veterinary Medicine	69
Forestry	47	Military Department	695
Landscape Gardening	26	Surveying	195

RESIDENCE BY STATES

Alabama	656
Georgia	61
Florida	25
South Carolina	15
Mississippi	11
Texas	11
Tennessee	10
Louisiana	7
North Carolina	7
Indiana	1
Illinois	1
Kentucky	1
New Mexico	1
New York	1
South Dakota	1
West Virginia	1
Mexico	3
Peru	3
Cuba	2
China	1
Guatemala	1
Total	820

Langdon Hall

MILITARY ORGANIZATION

SESSION 1913–1914

President,
CHARLES C. THACH.

Commandant,
COL. BENJAMIN S. PATRICK.

Surgeon,
J. H. DRAKE.

Bandmaster,
MAJOR A. L. THOMAS.

Regimental Staff,

Cadet Captain R. E. Herring, Adjutant.
Cadet Captain M. H. Killingsworth, Quartermaster.
Cadet Captain W. E. Arnold, Commissary.

Regimental Non-Commissioned Staff,

Cadet Sergeant D. D. Gibson, Sergeant Major.
Cadet Sergeant J. M. Oliver, Quartermaster Sergeant.
Cadet Sergeant E. S. McKissick, Color Sergeant.
Cadet Sergeant R. M. Howe, Drum Major.

First Battalion,

Cadet Major, H. P. Dixey.
Cadet Lieutenant E. F. Barry, Adjutant.
Cadet Lieutenant C. C. Harper, Quartermaster and Commissary.
Cadet Sergeant E. A. Allen, Sergeant Major.

Cadet Captains,

Company A.	Company B.	Company C.	Company D.
M. F. Meador,	W. B. Tisdale,	M. W. Crenshaw,	W. H. Tisdale.
Cadet First Lieutenants,			
C.L.Hollingsworth,	J. R. Lester,	P. Minnis,	L. H. Lewis.
R. H. Neel,	O. K. Seyforth,	W. T. Cheney,	
Cadet Second Lieutenants,			
C. H. Cooper,	R. H. Boykin,	W. B. Henderson,	G. S. Waits.
Cadet First Sergeants,			
A. Bonds,	J. W. Starkey,	N. W. Proctor,	J. P. Melvin.
Cadet Sergeants,			
T. M. Jones,	C. M. Farrow,	A. P. Turner,	R. V. Pettis,
J. A. Duncan,	C. P. Gaston,	G. C. Yancey,	L. P. Sweatt,
C. W. Harrison,	J. F. Bazemore,	M. W. Pouncey,	R. Dennis,
L. S. Owens,	J. P. Wilson,	C.D.Montgomery,	C. G. Sharp.
Cadet Corporals,			
A. O. Jackson,	S. A. Wingard,	E. W. Smith,	V. J. Douglass,
P. R. Smith,	W. B. Persons,	H. L. P. King,	E. S. Gatchell,
J. D. Browne,	C. K. Bryan,	L. I. Davis,	E. M. Manning,
G. H. Stewart,	J. G. Woodall,	C. B. McManus,	L. P. Hodnette,
E. Slager,	A. P. McCrary,	E. P. Taylor,	E. B. Calloway,
	J. C. Mohns,	G. R. Smith,	E. A. Wagner.

Second Battalion,

Cadet Major, W. H. Wilson.

Cadet Lieutenant A. T. Graydon, Adjutant.

Cadet Lieutenant C. A. Basore, Quartermaster and Commissary.

Cadet Sergeant C. F. Moreland, Sergeant Major.

Cadet Captains,

Company E.	Company F.	Company G.	Company H.
C. S. Noble,	E. E. Williams,	F. P. Samford,	J. C. Lee.
Cadet First Lieutenants,			
E. L. Gilder,	P. Mixon,	E. D. Fly,	
J. M. Davis,	E. M. Lindsey,	M. Ratchford,	F. E. Boyd.
Cadet Second Lieutenants,			
H. A. Vaughan,	J. M. White,	J. E. Riley,	P. L. Jones.
Cadet First Sergeants,			
H. H. Turner,	C. U. Irvine,	F. L. Tucker,	W. F. Littleton.
Cadet Sergeants,			
B. O. Driver,	A. L. Harrell,	E. L. Tuttle,	C. A. Donehoo,
J. A. Cullars,	L. G. Pearce,	C. M. McCall,	J. M. Beutell,
J. A. Fincken,		G. Andrews,	P. H. Hagedorn,
L. A. Miller,		I. D. Vail,	G. A. Patterson.
Cadet Corporals,			
W. M. Billing,	G. R. Corcoran,	E. B. Holloway,	C. E. Newman,
P. J. Edwards,	A. E. Hayes,	J. W. Andrews,	W. C. Payne,
R. F. Mims,	H. M. Wilson,	J. D. Ashcraft,	L. R. Owsley,
W. H. Carter,	G. Liddell,	A. C. Duggar,	L. T. Wells,
W. D. Crawford,	W. M. Thigpen,	H. L. Evans,	W. W. Wood,
L. O. Hertz,		R. H. Slider,	E. P. McCormac.

THE CADET BAND

Session 1913-1914

A. L. THOMAS, Bandmaster.

P. R. BIDEZ, Assistant.

Military Officers.

H. M. Martin	Cadet Lieutenant
J. J. Haralson	Cadet Lieutenant
J. A. Simms	Cadet Sergeant
W. E. Hall	Cadet Sergeant
R. M. Howe	Drum Major

Musicians.

L. A. McCranie, Cornet.
W. E. Hall, Cornet.
W. T. Mills, Cornet.
F. H. Haynie, Cornet.
H. P. Harris, Cornet.

J. A. Simms, Trombone.
C. D. Moon, Baritone.
A. E. Booth, Tenor.
R. D. Kershaw, Tuba.
F. M. Taylor, Snare Drum.

P. R. Bidez, Clarinet.
B. P. Blasingame, Clarinet.
J. J. Haralson, Clarinet.
S. J. Smith, Clarinet.
H. M. Martin, Piccolo.

D. A. Gammage, Alto.
M. M. Davis, Alto.
G. A. Patterson, Alto.
J. M. Kelley, Alto.
Norman McNeill, Bass Drum.

Bugle Corps.

G. L. WASHINGTON, Chief Trumpeter.

T. W. Blanchard.
N. B. Wentworth.
J. L. Howard.
N. C. Johnson.
G. L. Moulton.

Cadets of the graduating class who were reported to the Adjutant-General, U. S. Army, for publication in the "Official Army Register" as having ranked highest in the Military Department:

1889
A. St. C. Dunstan,
B. H. Crenshaw,
A. J. Burr.

1890
F. D. Milstead,
J. W. Bivins,
G. W. Emory.

1891
L. E. Baker,
C. C. Johnson,
F. J. Bivins.

1892
H. F. Dobbin,
A. L. Jones,
C. L. Brown.

1893
Joel Dumas,
C. H. Smith,
J. F. Webb.

1894
C. S. Andrews,
P. P. McKeown,
R. L. Dorsey.

1895
S. L. Coleman,
H. H. Smith,
L. B. Gammon.

1896
A. L. Alexander,
W. L. Fleming,
W. M. Williams.

1897
P. G. Clark,
G. M. Holley,
G. N. Mitcham.

1898
A. H. Clark,
A. McB. Ransom,
John Haralson.

1899
I. F. McDonnell,
A. H. Feagin,
T. W. Wert.

1900
E. M. Mason,
H. P. Powell,
C. W. Nixon,

1901
A. F. Jackson,
J. D. Foy,
P. S. Haley.

1902
W. D. Willis,
J. E. D. Yonge,
J. B. Garber.

1903
H. E. Davis,
H. M. Yonge,
T. J. Dowdell.

1904
J. McDuffie,
B. L. Shi,
Geo. Dunglinson, Jr.

1905
R. P. Boyd,
R. M. McCulloh, Jr.
J. H. Patterson.

1906
W. H. Foy,
F. H. Mohns,
M. A. Frazer.

1907
N. B. McLeod,
W. L. Perdue,
G. F. Lipscomb.

1908
S. A. Ellsberry,
C. M. Howard,
R. H. Liddell,

1909
J. W. Powell,
S. H. Richardson,
T. Beasley.

1910
D. M. Clements,
C. C. Yonge,
J. M. Spearman,

1911
J. E. Davis,
J. J. Cater,
G. Lothrop.

1912
S. R. Cruse,
C. C. Thach, Jr.
F. L. Jenkins.

1913
R. A. McGinty,
D. L. Taylor,
H. C. Hanlin.

REQUIREMENTS FOR ADMISSION

All applicants for admission must present testimonials of good moral character, and those who come from other colleges must bring certificates of honorable discharge or furnish other testimonials of good moral character.

Students upon their arrival in Auburn should report promptly to the President.

Entrance examinations will begin on Monday, September 7th. These examinations will be required of all students entering college for the first time, except those who bring certificates from accredited high schools or preparatory schools or from reputable colleges or universities.

REGISTRATION.

All students are required to register on the first day of the session and on the opening day after the Christmas vacation. Registration at a later date involves additional administration work to the College and seriously affects the work of the student. An additional fee of $2.00 will be charged for registration after September 11th and January 6th.

All new students, whether applicants for regular or irregular courses, are required to report for classification to the Chairman of the Committee on Entrance Examinations, who will give them cards of admission to the classes to which they are assigned.

ADMISSION TO THE FRESHMAN CLASS.

To enter the freshman class the applicant must be not less than fifteen years of age.

For unconditional admission to any bachelor's course, or to the Veterinary College, a student will be required to present fourteen entrance units.

Students who wish to enter the regular courses and are deficient in entrance requirements may enter and be classified as conditioned students provided their deficiencies do not exceed two units.

For entrance to any of the special courses that do not lead to degrees, applicants must give evidence of satisfactory preparation for pursuing the work as outlined in the catalogue. In accordance with the requirements of the American Conference of Pharmaceutical Faculties, for entrance to the two-year course in pharmacy, leading to the degree of Graduate in Pharmacy, at least one year of high school work is required.

Of the fourteen units required for admission in full standing to the freshman class, eight are prescribed as follows:

In mathematics	3 ½ units
In English	3 units
In History	1 ½ units
Total prescribed	8 units

ENTRANCE SUBJECTS.

Credit for admission will be given for any high school subject properly taught.

The principal subjects in which units may be offered for entrance are as follows:

Algebra	1½ units
Advanced Arithmetic.	½ unit
Plane Geometry	1 unit
Solid Geometry	½ unit
Trigonometry	½ unit
High School Grammar	½ unit
Rhetoric and Composition	1½ units
Literature	1½ units
Advanced U. S. History	1 unit
Ancient History	1 unit
Mediaeval and Modern History	1 unit
English History	1 unit
Pedagogy	½ unit
Psychology	½ unit
French	1 to 2 units
German	1 to 2 units
Spanish	1 to 2 units
Latin Grammar	1 unit
Caesar	1 unit
Cicero	1 unit
Virgil	1 unit
Greek	1 to 2 units
Commercial Geography	½ unit
Physical Geography	1 unit
Agriculture	½ to 2 units
Zoology	½ to 1 unit
Physiology	½ to 1 unit
Biology	½ to 1 unit
Physics	½ to 1 unit
Chemistry	½ to 2 units
Botany	½ to 1 unit
Civil Government	½ to 1 unit
Shop Work	½ to 2 units
Mechanical Drawing	½ to 2 units
Freehand Drawing	½ to 1 unit
Music	½ to 3 units
Bookkeeping	½ to 1 unit
Stenography and Typewriting	½ to 1 unit
Domestic Science	½ to 2 units

SPECIAL OR IRREGULAR STUDENTS.

Those students who are not able to meet the regular entrance requirements may be admitted to special courses in agriculture, architecture, engineering, chemistry, pharmacy, etc., and will be classified as special or irregular students, provided they are seventeen years of age and are prepared to do satisfactory work in the subjects which they desire to take.

UNIT DEFINED.

A unit is defined as a high school or preparatory course of five periods of forty or forty-five minutes each weekly, throughout the academic year of nine months. In science courses, two laboratory periods are counted as the equivalent of one recitation period. Credits of less than one unit may be granted for courses that do not run full time. No more than four units will be given for one year's work in the high school.

ENTRANCE SUBJECTS WITH DEFINITIONS OF REQUIREMENTS.

MATHEMATICS.

1. Advanced Arithmetic Equivalent of courses offered in the accredited secondary schools of Alabama.	½unit
2. (a) Algebra to Quadratics	1 unit
(b) Quadratics, binomial theorem, progression, etc. (equivalent of Wentworth's *Elementary Algebra*)	½unit
3. Plane Geometry	1 unit
4. Solid Geometry	½unit
5. Trigonometry	½unit

It is absolutely essential that students who hope to succeed should be well grounded in arithmetic, algebra and geometry.

A working knowledge of the metric system should also be obtained.

ENGLISH.

1. High School Grammar	½unit
2. Composition and Rhetoric	1½units
3. Literature	1½units

Below will be found two lists of books on which entrance requirements in English for 1914-15 are based, one for careful study and practice in class, the other for general reading, largely out of class. Those included in the list for careful study, the student will be expected to know pretty thoroughly. This part of the examination will be upon subject matter, literary form, and logical structure;

and, in addition, the candidate will be required to answer questions involving a fair knowledge of the leading facts in those periods of English literature to which the prescribed work belongs. Those works in the list for reading and practice, the student will not be expected to know minutely, but to have a general knowledge of their subject matter and the lives of their authors. The main object in this part of the examination is to test the candidate's ability to use good English.

1. *For Study and Practice*:

Shakespeare's *Macbeth;* Milton's *Lycidas, Comus, L'Allegro* and *Il Penseroso;* Burke's *Speech on Conciliation with America* or Washington's *Farewell Address* and Webster's *First Bunker Hill Oration;* Macaulay's *Life of Johnson* or Carlyle's *Essay on Burns.*

2. *For Reading and Practice*:

Group I. (two to be selected). Shakespeare's *As You Like It, Henry V., Julius Caesar, The Merchant of Venice, Twelfth Night.*

Group II. (one to be selected). Bacon's *Essays;* Bunyan's *Pilgrim's Progress, Part I.;* the *Sir Roger de Coverly Papers* in the *Spectator;* Franklin's *Autobiography.*

Group III. (one to be selected). Chaucer's *Prologue;* Spenser's *Faerie Queen* (selections); Pope's *The Rape of the Lock;* Goldsmith's *The Deserted Village;* Palgrave's *Golden Treasury* (*First Series*) *Books II. and III.,* with special attention to Dryden, Collins, Gray, Cowper, and Burns.

Group IV. (two to be selected). Goldsmith's *The Vicar of Wakefield;* Scott's *Ivanhoe;* Scott's *Quentin Durward;* Hawthorne's *The House of Seven Gables;* Thackeray's *Henry Esmond;* Mrs. Gaskell's *Cranford*; Dicken's *A Tale of Two Cities;* George Eliot's *Silas Marner;* Blackmore's *Lorna Doone.*

Group V. (two to be selected). Irving's *Sketch Book;* Lamb's *Essays of Elia;* DeQuincey's, *Joan of Arc,* and *The English Mail Coach;* Carlyle's *Heroes and Hero Worship;* Emerson's *Essays* (selected); Ruskin's *Sesame and Lilies.*

Group VI. (two to be selected). Coleridge's *Ancient Mariner;* Scott's *Lady of the Lake;* Byron's *Mazeppa,* and *Prisoner of Chillon;* Palgrave's *Golden Treasury* (*First Series*) *Book IV.,* Macaulay's *Lays of Ancient Rome;* Poe's *Poems;* Lowell's *Vision of Sir Launfal;* Arnold's *Sohrab and Rustum;* Longfellow's *Courtship of Miles*

Standish; Tennyson's *Gareth and Lynette, Launcelot and Elaine,* and *The Passing of Arthur;* Browning's *Poems* (selected).

LATIN.

1. Latin Grammar, easy composition and easy reading ---------------------- 1 unit
2. Caesar --------------------------------------- 1 unit

   Any four books of the *Gallic War.*
3. Cicero --------------------------------------- 1 unit

   Any six orations.
4. Virgil --------------------------------------- 1 unit

   The first six books of the *Æneid.*

   Equivalents in Nepos, Sallust, Ovid, and other Latin authors may be offered in place of the reading indicated above.

GREEK.

1. Grammar and Composition ------------------ 1 unit

   The common forms, idioms, and constructions, and the general grammatical principles of Attic Greek prose. Translation into Greek of detached sentences and into English of easy Greek narrative.
2. Xenophon ---------------------------------- 1 unit

   The first four books of the Anabasis.

GERMAN.

Elementary German ---------------------- 1 to 2 units

The examination will be suited to the proficiency of those who have had two years of German in a preparatory school, and will test (a) the candidate's knowledge of the rudiments of German grammar; (b) ability to read easy prose at sight, and (c) to translate simple English sentences into German. The candidate should have read two hundred pages of easy prose.

FRENCH.

Elementary French ---------------------- 1 to 2 units

The examination will be suited to the proficiency of those who have had two years in French in a preparatory school, and will include (a) the translation at sight of ordinary nineteenth century prose. (b) the translation from English into French of sentences to test the candidate's familiarity with elementary grammar. The candidate should have read three hundred pages of simple prose.

SPANISH.

1. Elementary Spanish ------------------1 to 2 units
   The preparation in Spanish should follow the plan outlined for the work in French. The amount of reading prescribed should be about the same.

HISTORY.

1. Ancient History ----------------------------1 unit
   Greece and Rome should be emphasized. The completion of Myer's *Short History of Ancient Times,* or the equivalent.
2. Mediaeval and Modern History ------------1 unit
   The completion of Myer's text or the equivalent.
3. History of England -----------------------1 unit
   The completion of Montgomery's *English History* or the equivalent.
4. History of the United States --------------1 unit
   A credit of one unit is granted for a high school course requiring one year for completion.

CIVICS.

Civics --------------------------------½ to 1 unit
A credit of one unit is granted for high school work in civics requiring one year for completion.

SCIENCE.

1. Botany -------------------------------½ to 1 unit
   The preparation in botany should include anatomy; morphology; physiology; ecology; the natural history of the plant groups and classification. Considerable time should be given to laboratory and field work, and records of the work should be kept in notebooks.
2. Chemistry ---------------------------½ to 2 units
   The preparation in chemistry should include laboratory work, comprising at least 40 exercises; instruction by lecture and demonstration; and study of a standard text like

Smith's Essentials of Chemistry. The laboratory notebook should be kept.

3. Physics .... ½ to 1 unit

   A year's work in physics should include the thorough study of a good text, like Higgin's *Physics*, supplemented by lectures and demonstrations, and by individual laboratory work comprising at least 40 exercises, the results of which should be kept in a notebook.

4. Physical Geography .... ½ to 1 unit

   The preparation should include at least one modern text-book as Maury-Symond's *Physical Geography*.

5. Commercial Geography .... ½ unit

   A credit of ½ unit is granted for a high school course requiring at least one-half year for completion.

6. Physiology .... 1 unit

   Any good high school text.

7. Zoology .... ½ to 1 unit

   One year's work following a good elementary text-book, with at least forty hours of laboratory work and excursions.

8. Agriculture .... ½ to 2 units

   For a credit of one unit the course should have been guided by some good text like Duggar's *Agriculture*, with practical demonstrations and experiments by the student in the school garden or on the farm. Practical experience on the farm will also be counted toward credit, and where this practical experience has extended over two or more years it may be accepted as fulfilling the requirements without the text-book study. Additional credit will be given for more advanced study.

9. Biology .... ½ to 1 unit

   One full year's work following a good elementary text-book with at least forty hours of laboratory work and excursions covering the elements of botany and zoology. Notebook with original drawings should be kept.

DRAWING.

Drawing .... ½ to 2 units

For a credit of one unit a full year's work in freehand or mechanical drawing, including geometrical, plane and solid figures, simple pieces of machinery, and with a fair knowledge of the rules of perspective and light and shade sketching from casts, plants, and other objects. Additional credit will be granted for more advanced work.

PSYCHOLOGY AND PEDAGOGY.

Psychology and Pedagogy ------------------1 unit

For credit in either of these subjects, a student must have studied at least a half year in a regular course based on some elementary text like Halleck's *Psychology* and White's *Theory and Practice of Teaching.*

SHOPWORK.

1. Woodwork ---------------------------------1 unit

   One full year's work of not less than six hours per week in woodworking, including bench work, joining, turning and construction of useful objects.

2. Forge, Foundry, and Machine Work ----½ to 3 units

   Proficient training in these subjects will be credited according to the time they are systematically followed, two hours of laboratory instruction being counted as one hour of recitation. The student should be familiar with the usual shopwork process and methods of work, and the properties of the materials commonly used in construction.

MUSIC.

1. Music Appreciation -------------------------1 unit

   A general knowledge of the principal musical forms—song, classic dance, fugue, sonata (all movements), and symphony—and of their historical development; and acquaintance with the lives of the great composers and with their compositions. A reasonable familiarity with the more commonly heard works of the best composers as Bach, Handel, Hadyn, Mozart, Beethoven, Weber, Schubert, Mendelssohn, Chopin, Schumann, Wagner, etc.

2. Harmony -----------------------------------1 unit

   The ability to harmonize a single soprano of not fewer than eight measures in four vocal parts, involving, in major and minor modes, diatonic chords of the seventh and modulation, transient or complete, to next-related keys; the ability to analyze (by indicating the keys, the chords, and the various non-harmonic tones employed), a simple piece of music involving altered chords, passing tones, suspensions, appogiaturas, and pedal point.

3. Musical Performance ----------------------1 unit

The ability to play acceptably at sight the simpler pieces of the classic composers, on the piano, organ, violin, or voice. The required technique should be the result of at least two year's instruction under a competent teacher.

DOMESTIC SCIENCE.

Domestic Science ------------------- 1 to 2 units

One full year's work of not less than six hours per week in cookery, sewing, fitting, or other work usually included in high school courses in this subject.

BOOKKEEPING.

Bookkeeping ----------------------½ to 1 unit

Theory and practice involved in the historical entry, journalizing, special column, the balance sheet, and the customs and laws governing invoices, notes, drafts, bills of lading, receipts, etc. Applicants must be prepared to write out any of the forms involved in the above requirements.

STENOGRAPHY AND TYPEWRITING.

Stenography and Typewriting --------½ to 1 unit

The ability to write from dictation at the rate of forty words a minute, and to transcribe same on the typewriter at the rate of thirty words per minute. Spelling and punctuation must be up to a grade of ninety.

ADMISSION ON CERTIFICATE.

Applicants will be admitted without examination on presenting a certificate from any of the *Certificate Schools* named herein.

The following educational institutions having made application to be correlated to this college and having presented an approved course of study, are hereby declared to be *Certificate Schools,* and are granted the privilege set forth in the following:

"Students from certificate schools will be admitted to the Freshman class *without examination* upon the certificate of the president or principal, showing definitely that such students have completed satisfactorily all the studies required for admission, as stated in the catalogue, and are otherwise admissable."

District Agricultural Schools.

First, Jackson	R. L. Reaves
Second, Evergreen	J. T. McKee
Third, Abbeville	C. E. Crossland
Fourth, Sylacauga	Joseph S. Ganey
Fifth, Wetumpka	J. M. Crowell
Sixth, Hamilton	H. O. Sargent
Seventh, Albertville	S. L. Gipson
Eighth, Athens	J. M. Atkinson
Ninth, Blountsville	W. B. Crumpton, Jr.
Northeast Alabama Agricultural and Industrial Institute, Lineville	A. G. Cusick

County High Schools.

Autauga, Prattville	H. T. Wallace
Barbour, Clio	A. C. Anderson
Bibb, Centreville	J. W. Watson
Blount, Oneonta	T. C. Moore
Calhoun, Oxford	R. S. King
Chambers, Milltown	J. D. Pepper
Cherokee, Center	J. A. Johnson
Choctaw, Butler	Zack Rogers
Clark, Grove Hill	I. T. Quinn
Clay, Ashland	J. F. Knight
Cleburne, Heflin	J. K. Hunt
Coffee, Enterprise	W. I. Pittman
Colbert, Leighton	C. V. Thompson
Coosa, Rockford	A. R. Jones
Cullman, Cullman	W. L. Hicks
Dale, Ozark	N. A. Jones
Dallas, Plantersville	J. L. Moulder
DeKalb, Ft. Payne	N. J. Callan
Elmore, Eclectic	J. J. Yarbrough
Escambia, Atmore	C. A. Peavey
Etowah, Attalla	J. R. Kimbrough

Franklin, Russellville	E. T. Bolding
Geneva, Hartford	B. H. Boyd
Henry, Headland	W. S. Sconyers
Houston, Columbia	C. W. Johnson
Jackson, Scottsboro	R. P. Wills
Lamar, Vernon	J. L. Gibson
Lauderdale, Rogersville	W. L. Davis
Lawrence, Moulton	Earl M. Hodson
Lee, Opelika	W .S. McLeod
Limestone, Elkmont	E. B. Baxter
Lowndes, Ft. Deposit	R. L. Griffin
Macon, Notasulga	H. C. McDonald
Madison, Gurley	W. T. Stephens
Marengo, Thomaston	W. C. Blasingame
Marion, Guin	J. B. Clark
Marshall, Guntersville	Oscar Horton
Monroe, Monroeville	George A. Harris
Morgan, Hartselle	J. H. Riddle
Pickens, Reform	J. E. Hendley
Pike, Brundidge	S. B. Gibson
Randolph, Wedowee	R. L. Burks
Shelby, Columbiana	L. Leftwich
St. Clair, Odenville	J. O. Sturdivant
Sumter, York	P. B. Pepper
Talladega, Lincoln	J. A. Morgan
Tallapoosa, Dadeville	F. D. Graves
Walker, Jasper	J. A. Moore
Wilcox, Camden	Claude Hardy
Winston, Double Springs	B. B. McLeran

Other High Schools.

Alexander City High School, Alexander City	J. M. Pearson
Andalusia High School, Andalusia	W. L. Yarbrough
Anniston High School, Anniston	D. R. Murphy
Green University School, Athens	W. K. Green
Auburn High School, Auburn	S. C. Godbold
Barnes' School, Montgomery	E. R. Barnes
Banks Stephens' Institute, Forsyth, Ga.	J. R. Campbell
Baptist Collegiate Institute, Newton	A. W. Tate
Bay Minette High School, Bay Minette	S. M. Tharpe
Berry School, Rome, Ga.	R. H. Adams
Bessemer High School, Bessemer	A. A. Persons
Butler's School, Huntsville	S. B. Butler
Central High School, Birmingham	C. A. Brown
High School, Boaz	J. C. McAuley
Snead Seminary, Boaz	L. F. Cooley

Brewton High School, Brewton	W. L. Porter
High School, Camp Hill	C. C. Moseley
Industrial Institute, Camp Hill	L. Ward
Carrolton High School, Carrolton, Ga	H. B. Adams
High School, Clanton	J. J. Pickens
High School, Collinsville	I. J. McCall
Cordova High School, Cordova	J. W. Smith
High School, Cuba	M. E. Head
Normal School, Daphne	A. S. Ford
Decatur High School, Decatur	J. M. Collier
Dothan High School, Dothan	J. V. Brown
Demopolis High School, Demopolis	K. G. Hoover
Edgar's School for Boys, Montgomery	R. B. Edgar
High School, Elba	W. J. Steele
High School, Ensley	R. L. Dimmitt
Eufaula High School, Eufaula	H. L. Upshaw
Eutaw High School, Eutaw	A. F. Jackson
High School, Florala	J. P. Doster
Georgia Military Academy, College Park Ga.	J. C. Woodward
Gadsden High School, Gadsden	W. C. Griggs
Geneva High School, Geneva	R. E. Little
Georgiana High School, Georgiana	W. P. Lunsford
High School, Gordo	W. T. Snoddy
Greenville High School, Greenville	C. B. Gamble
Haleyville High School, Haleyville	E. M. Meadows
Healing Springs Industrial Academy, Healing Springs	C. C. Smith
Huntsville High School, Huntsville	R. C. Johnston
LaFayette High School, LaFayette	F. T. Appleby
Linden High School, Linden	J. J. Holladay
High School, Louisville	V. V. Norton
Luverne High School, Luverne	W. R. Hale
High School, Madison	T. G. Riddle
High School, Marion	C. C. Johnson
Central High School, Memphis	N. M. Williams
Mobile High School, Mobile	S. S. Murphy
Mobile Military Institute, Mobile	T. A. Taylor
University Military School, Mobile	J. T. Wright
Sidney Lanier High School, Montgomery	C. L. Floyd
New Decatur High School, New Decatur	W. F. Jones
Noble Institute, Anniston	Rev. James P. Glass
O'Neal High School, Cordele, Ga.	J. Scarboro
Opp High School, Opp	J. F. Scofield
Palmetto High School, Palmetto, Ga	L. A. Page

High School, Pine Apple	E. L. Williamson
Roanoke High School, Roanoke	L. L. Vann
Selma High School, Selma	A. F. Harman
Slocomb High School, Slocomb	E. J. Laney
Talladega High School, Talladega	D. A. McNeill
Thomasville High School, Thomasville	H. M. Morrow
Thorsby Institute, Thorsby	S. H. Herbert
Unity-Chilton Baptist High School, Thorsby	N. W. Henson
Tuscumbia High School, Tuscumbia	J. F. Collins
Tuskegee High School, Tuskegee	R. E. Thompson
High School, Uniontown	A. M. Spessard
University School, Montgomery	J. M. Starke
University High School, Birmingham	J. J. White
Union Springs High School, Union Springs	E. S. Pugh

ADMISSION OF YOUNG WOMEN.

Young women of mature mind and character, who are at least seventeen years of age, will be admitted. Upon the approval of the faculty, applicants may be admitted at an age less than seventeen years if a resident of Auburn will act as guardian.

The only conditions imposed will be that they engage in earnest study and attend the exercises regularly. They will board in town with private families and will attend college only at the hours of their exercises.

NUMBER OF EXERCISES REQUIRED.

All students are required to have *not less than fifteen* recitations per week, or the equivalent, in addition to the exercises in laboratory work, drawing, and military drill. These additional exercises occupy not less than twelve hours per week and in all give twenty-seven to thirty hours per week required in college exercises.

SPECIAL AND IRREGULAR STUDENTS.

The privilege of taking irregular courses will be granted only to those students who are of age or to those whom for special reasons the faculty may grant permission. Students who are not of age will not be permitted to enter a special or irregular course without the written permission of parent or guardian.

A student to whom this privilege has been granted will be assigned to some member of the faculty who will act as his adviser in regard to his work. The professor in charge of a department will decide whether a special student is prepared for admission to his class.

Those students who are candidates for a degree, but who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies.

REMOVING CONDITIONS.

At the beginning of each term examinations will be given to those students who wish to remove entrance conditions.

CHANGES IN COURSE.

Special and irregular students may be transferred to any regular course by presenting satisfactory entrance requirements and by standing satisfactory examinations on all the work which they have not taken in that regular course.

Students will be permitted by the faculty to change from one regular course to the same class in another regular course, and will be required to make up only such back work in the new course as is necessary in order to carry on the regular studies in their class.

Permission to change from one course to another will not be granted within two weeks of any term or mid-term examination.

ADMISSION FROM OTHER COLLEGES.

Students coming from another college of similar rank will be assigned to the class to which they would belong in the institution which they have left, and will be required to make up only such back work in the course to which they are assigned as is necessary in order to carry on the regular studies of their class.

COURSES OF INSTRUCTION.

The courses of study include the physical, chemical, and natural sciences, with their applications; agriculture, botany, animal industry, horticulture, mechanics, astronomy, mathematics, drawing, civil, electrical, mechanical and mining engineering; architecture; physiology and veterinary science, pharmacy, English, French, German and Latin languages; history, political economy; mental and moral sciences.

The studies are arranged in regular courses so as to offer liberal and practical education as a preparation for the active pursuits of life.

There are ten degree courses for undergraduates, each leading to the degree of Bachelor of Science (B. S.) and requiring four years for its completion:

I. COURSE IN CIVIL ENGINEERING.
II. COURSE IN ELECTRICAL ENGINEERING.
III. COURSE IN MECHANICAL ENGINEERING.
IV. COURSE IN MINING ENGINEERING.
V. COURSE IN ARCHITECTURE.
VI. COURSE IN CHEMISTRY AND METALLURGY.
VII. COURSE IN AGRICULTURE.
VIII. COURSE IN PHARMACY.
IX. COURSE IN CHEMICAL ENGINEERING.
X. GENERAL COURSE.

SHORTER COURSES.

XI. TWO-YEAR COURSE IN MECHANIC ARTS.
XII. TWO-YEAR COURSE IN AGRICULTURE.
XIII. TWO-YEAR COURSE IN PHARMACY. (PH. G.)
XIV. THREE-YEAR COURSE IN PHARMACY. (PH. C.)
XV. THREE-YEAR COURSE IN VETERINARY MEDICINE. (D. V. M.)
XVI. TWO-YEAR COURSE IN APPLIED ELECTRICITY.
XVII. COURSE FOR ROAD FOREMEN AND INSPECTORS.
XVIII. ONE-YEAR COURSE IN WIRELESS TELEGRAPHY.

Special Course in Agriculture.—Young men over twenty-one years of age who desire to study agriculture will be permitted without examination to enter classes in agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied. They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus in one year acquire valuable practical knowledge of scientific agriculture.

Course I. includes the principles and applications of sciences that directly relate to civil engineering, and is adapted to those who expect to enter that profession.

Course II. includes, besides the general principles and applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged to fit men for the profession of electrical engineering.

Course III. furnishes instruction in steam engineering, materials and construction, drawing and machine design, electrical engineering, together with laboratory work. The course is intended to qualify men to fill positions in the manufacturing industries.

Course IV. includes theoretical and practical instruction in geology, mineralogy; chemistry, civil and electrical engineering, as applied to mines, mapping, exploration; boring, ventilation; timbering, and all the operations pertaining to the profession of mining engineering.

Course V. has been arranged to give theoretical and practical knowledge of architecture in order to enable students to take advantage of office opportunities upon graduation. It embraces architectural drawing and design, history, and ornamental architectural engineering, and office practice.

Course VI. provides for thorough theoretical and practical instruction in pure and technical chemistry and metallurgy, and in scientific branches relating thereto. Students taking this course also pursue the study of German or French during the junior and senior years, and are thus prepared to utilize for reference and for study scientific journals and works published in those languages.

Course VII. includes theoretical and practical instruction in those branches that relate to agriculture, horticulture, animal idustry, botany and entomology, and is especially adapted to those who intend to devote themselves to agricultural and horticultural pursuits.

Cource VIII. includes, besides the general education of Course VI. of the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Course IX. has been arranged for students who desire preparation for chemical engineering work with special reference to planning, construction and operation of plants employed in the chemical industries, such as manufacture of fertilizers, sugars, ceramics, oils, and fats, and their products, coal by-products, etc., etc.

Course X. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as those who intend ultimately to engage in teaching or in some commercial or professional business.

Courses XI., XII., XIII., XIV., XV., XVI., XVII., and XVIII., have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and to take one of the regular degree courses. To enter these courses a student must be not less than seventeen years of age.

DEGREES AND CERTIFICATES.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, with approval of the faculty, may be awarded a certificate of proficiency in that subject.

Students who complete one of the two-year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

A student who completes the work of the two-year course in pharmacy and submits a satisfactory thesis will be granted the degree of Graduate in Pharmacy (Ph. G.)

A student who completes the work of the three-year course in pharmacy and submits a satisfactory thesis, will be granted the degree of Pharmaceutical Chemist (Ph. C.)

A student who completes the work of the three-year course in veterinary medicine and submits a satisfactory thesis, will be granted the degree of Doctor of Veterinary Medicine (D. V. M.)

No certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English. Every applicant for a certificate will be required to stand this special examination during the senior year.

Declamations and themes or orations are required of all regular students pursuing courses leading to a degree. For requirements, see Department of English.

GRADUATE COURSES.

A more extended course of study may be taken by a graduate of this institution or of any college of equal grade. The completion of a course which leads to a post-graduate degree of Master of Science requires one year's residence, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the faculty.

The candidate must also present to the faculty a satisfactory thesis showing independent investigation upon some subject pertaining to his course, and must pass an examination, at the close of each term, on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the faculty.

The subject for the thesis must be submitted to the faculty for approval prior to January 1st, and the thesis given to the professor by May 1st.

Applicants for a post-graduate degree and special students in post-senior studies are subject to the same general regulations as other students, and *pay the same fees,* but are exempt from all military duty.

The following courses are prescribed for the degrees named:

1. *Master of Science.*—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class; or in special cases, with the approval of the faculty, a student may devote his full time to work in two departments, in each of which he has completed the full senior course.

2. *Master of Science in Pharmacy.*—Pharmacy and Chemistry.

PROFESSIONAL DEGREES IN ENGINEERING.

I. *Degrees in Course.*—The professional degree of Civil Engineer, Electrical Engineer, Mechanical Engineer, Chemical Engineer, or Engineer of Mines will be conferred upon graduate students upon the satisfactory completion of the course of study prescribed, a residence of one year at the institute being required for the completion of those courses.

A written application stating the degree desired and the course of study selected must be submitted to the faculty at the beginning of the session. A satisfactory thesis must be submitted by May 1st.

The following courses of Study are prescribed for the degrees named:

Civil Engineer.—Civil Engineering and any two subjects selected from the following: Mathematics, analytical mechanics, mechanical engineering, electrical engineering, mining engineering, bacteriology.

Electrical Engineer.—Electrical engineering and mechanical engineering, or electrical engineering, mathematics and civil engineering.

Mechanical Engineering.—Mechanical engineering and machine design; or mechanical engineering, mathematics and mining engineering.

Chemical Engineer.—Electro-chemistry and advanced analytical or organic chemistry, together with one or more subjects selected from the following: Mechanical engineering, machine design, electrical engineering, mining engineering.

Engineer of Mines.—Graduate students who have completed the course in mining engineering may apply for this degree. The subjects to be pursued are mining engineering, civil engineering, and one other technical subject relating to mining and metallurgy, and approved by the faculty.

II. Degrees for Professional Work.—The above named professional degrees may be conferred upon graduates of the Alabama Polytechnic Institute in civil, electrical, mechanical, chemical, and mining engineering, upon complying with the following requirements:

1. The candidate must have spent at least four full years in the practice of that branch of engineering in which he graduated.

2. An approved thesis must be submitted to the faculty not later than May 1st of the year in which the degree is sought.

3. The student must show that he has filled satisfactorily a responsible position in charge of important engineering work. Written testimonials from employers or clients will be accepted as evidence of satisfactory service.

4. A written application, stating the degree desired, and giving a report or outline of the professional work upon which the application is based, must be submitted not later than January 1st of the year in which the degree is to be granted.

III. Special Students in Graduate Studies.—Students who are not graduates, but are qualified in special subjects to prosecute graduate studies, and desire to prepare themselves more thoroughly for professional or special work in any of the departments of engineering, in chemistry, pharmacy, veterinary science, or other subjects in which instruction is given, may, when qualified, with approval of the faculty, enter this higher department of study and have all the privileges of post-graduate students.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

Two degrees will not be given the same year.

LABORATORIES.

Laboratory instruction constitutes an important feature in the course of education provided for the students and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. Civil Engineering, Field Work, Surveying, Etc.
II. Electrical Engineering, Telephone Engineering.
III. Mechanical Engineering.
IV. Mechanic Arts.
V. Mining Engineering, Mineralogy.
VI. Ore Dressing.
VII. Architecture.
VIII. Technical Drawing, Machine Design.
IX. Chemistry, Metallurgy.
X. Agriculture.
XI. Botany.
XII. Pharmacy, Pharmaceutical Chemistry.
XIII. Horticulture.
XIV. Entomology.
XV. Animal Industry.
XVI. History.
XVII. Physics.
XVIII. Military Tactics.
XIX. Veterinary Science, Bacteriology, Physiology.
XX. Wireless Telegraphy.

Note.—Special work in English or history may be taken by students in the general course as a substitute for laboratory work.

ORGANIZATION

The instruction offered by the Institute is arranged in four divisions: (1) College of Engineering and Mines, (2) College of Agricultural Sciences, (3) Academic Departments, (4) College of Veterinary Medicine and Surgery.

I. The College of Engineering and Mines offers degree courses in (1) civil engineering, (2) electrical engineering, (3) mechanical engineering, (4) mining engineering, (5) chemical engineering, (6) chemistry and metallurgy, and (7) architecture.

In addition, students in these courses of the College of Engineering and Mines receive instruction in other departments as follows: Mechanical drawing and machine design, English, mathematics, history, and Latin, modern languages, physics, chemistry, and military science and tactics.

II. The College of Agricultural Sciences offers regular degree courses in (1) agriculture, (2) chemistry, (3) botany, (4) horticulture and forestry, (5) animal husbandry, and (6) pharmacy; a three-year course in pharmacy; a two-year course in pharmacy; a two-year course in agriculture.

This college comprises the following departments: Chemistry, agriculture, botany, pharmacy, horticulture and forestry, entomology, and animal industry.

In addition, students in the different departments of the College of Agricultural Sciences receive instruction in other departments as follows: English, history, and Latin, modern languages, mathematics; mechanic arts, surveying, physics, geology, and mining engineering, mechanical drawing and machine design, military science and tactics, and veterinary science.

III. A degree course is offered in the following subjects: Political economy, mental science, English, history, and Latin, modern languages, mathematics, physics, military science and tactics; and special pedagogical courses.

In addition, students in the general course receive instruction in the following technical departments: Mechanic arts, drawing, geology, animal industry, chemistry, botany, and agriculture.

IV. The College of Veterinary Medicine and Surgery offers a three-year course leading to the degree of Doctor of Veterinary Medicine. This college comprises the following departments: Veterinary medicine, physiology, surgery, anatomy, therapeutics, pathology, histology, bacteriology, obstetrics, infectious diseases, meat inspection, milk inspection, and animal parasites.

In addition, students in the College of Veterinary Medicine and Surgery receive instruction in other department as follows: English, chemistry, pharmacy, toxicology, and physiological chemistry, animal husbandry, and botany.

COURSES OF INSTRUCTION

COURSES OF INSTRUCTION

(Note:—The numbers in the Courses of Instruction refer to the subjects as described under "Description of Courses," pages 99 to 178 of this catalogue. The following abbreviations are used: Ac., Academic Departments; Eng., College of Engineering and Mines; Agr., College of Agricultural Sciences; Vet., College of Veterinary Medicine and Surgery; H. Wk., Hours per Week.)

GENERAL COURSE

Freshman Class

First Term

	H.Wk.
English (Ac. 102a)	3
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 401)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 102b)	3
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 102b)	3
History (Ac. 201)	2
Latin (Ac. 209)	3
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Agriculture (Agr. 201)	2
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

Sophomore Class

First Term

	H.Wk.
Latin (Ac. 210)	5
English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Drawing (Eng. 603)	3
General Botany (Agr. 301)	6
Chemical Lab'y (Agr. 110a) or Mechanic Arts (Eng. 361), or other Lab'y	4
Military Drill (Ac. 600)	3

Second Term

Latin (Ac. 210)	5
English (Ac. 104)	3
History (Ac. 202)	3
†Mathematics (Ac. 404)	5
General Botany (a) (Agr. 301)	6
Drawing (Eng. 603)	3
Chemical Lab'y (Ac. 110a), or Mechanic Arts (Eng. 362) or other Lab'y	4
Military Drill (Ac. 600)	3

Third Term

Latin (Ac. 210)	5
English (Ac. 104)	3
History (x) (Ac. 204)	3
†Mathematics (Ac. 404)	5
General Botany (a) (Agr. 301)	6
Drawing (Eng. 603)	3
Chemical Lab'y (Agr. 110a) or Mechanic Arts (Eng. 362) or other Lab'y	4
Military Drill (Ac. 600)	3

(a) Surveying (Eng. 101) may be substituted.

(x) Elementary Mechanics (Ac. 503) may be substituted.

†With approval of faculty other work may be substituted.

Junior Class

First Term

English (Ac. 107)	3
*Latin (Ac. 211)	3
French (Ac. 301a)	4
German (Ac. 305a)	4
†Organic Chem. (Agr. 103a)	3

	H.Wk.
Physics (Ac. 504)	3
Military Tactics (Ac. 601)	1
History (a) (Ac. 206)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
*Latin (Ac. 211)	3
French (Ac. 301b)	3
German (Ac. 305b)	3
†Organic Chem. (Agr. 103a)	3
Physics (Ac. 504)	3
Military Tactics (Ac. 601)	1
History (a) (Ac. 206)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 107)	3
*Latin (Ac. 211)	3
French (Ac. 301c)	4
German (Ac. 305c)	4
†Organic Chem. (Agr. 103a)	3
Physics (Ac. 504)	3
Military Tactics (Ac. 602)	1
History (a) (Ac. 206)	6
Military Drill (Ac. 600)	3

* Or advanced civics.

(a) The student may substitute laboratory of any department of natural science for which he may be qualified.

†Other science course approved by faculty may be substituted.

Senior Class

First Term

	H.Wk.
English (Ac. 109)	2
Mental Science (Ac. 1)	2
Latin (x) (Ac. 212)	3
French (Ac. 302a)	4
German (Ac. 306a)	4
Geology (Eng. 441)	2
Military Science (Ac. 603)	1
History (a) (Ac. 206)	6

Second Term

Political Economy (Ac. 2)	2
Mental Science (Ac. 1)	2
Latin (x) (Ac. 212)	3
French (Ac. 302b)	3
German (Ac. 306b)	3
Geology (Eng. 441)	2
Military Science (Ac. 604)	1
History (a) (Ac. 206)	6

Third Term

Political Economy (Ac. 2)	2
Mental Science (Ac. 1)	2
Latin (x) (Ac. 212)	3
French (Ac. 302c)	4
German (Ac. 306c)	4
Geology (Eng. 441)	2
Astronomy (Ac. 506) or Teachers' Physics (Ac. 508)	2
History (a) (Ac. 206)	6
Military Science (Ac. 605)	1

(x) English Constitutional History may be substituted.

(a) The student may substitute laboratory of any department of natural science for which he may be qualified.

COLLEGE OF ENGINEERING AND MINES

The following studies in the freshman class are prescribed in the departments of civil, electrical, mechanical and mining engineering:

Freshman Class

First Term

	H.Wk.
English (Ac. 101a, 102a,b)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term

	H.Wk.
English (Ac. 102a, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Agriculture (Agr. 201, 801)	2

	H.Wk.
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

CIVIL ENGINEERING

Sophomore Class

First Term

English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Plane Surveying (Eng. 102)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 361)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term

English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 404)	5
Topographic Surveying (Eng 103)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term

English (Ac. 104)	3
Elementary Mechanics (Ac. 503)	3
Mathematics (Ac. 404)	5
Railroad Surveying (Eng. 104)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 305)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Surveying, (Eng. 105):

Sixty hours per week for four weeks immediately after commencement in summer camp.

Junior Class

First Term

	H.Wk.
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Railroad Surveying (Eng. 106)	6
Roads and Pavements (Eng. 107)	5
Structural Drafting (Eng. 112)	5
Military Tactics (Ac. 601)	1
*Machine Shop (Eng. 374) or Mineralogy (Eng. 431)	4
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Mechanics of Materials (Eng. 110)	5
Road Materials Lab'y (Eng. 108)	3
Structural Drafting (Eng. 112)	5
Field Work	6
Graphic Statics (Eng. 111)	3
*Machine Shop (Eng. 374) or Mineralogy (Eng. 432)	4
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Mechanics of Materials (Eng. 110)	5
Road and Street Improvements (Eng. 109)	3
Structural Drafting (Eng. 112)	5
*Machine Shop (Eng. 374) or Mineralogy (Eng. 433)	4
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

*And Practical Mechanics (Eng. 321).

Surveying: Sixty hours per week for four weeks immediately after commencement in summer camp.

Senior Class

First Term

English (Ac. 108)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Geology (Eng. 441)	2
Theory of Structures (Eng. 113)	5
Railroad Engineering (Eng. 115)	3

	H.Wk.
Bridge and Structural Design (Eng. 114)	9
Military Science (Ac. 603)	1
Thesis (Eng. 120)	4

Second Term

Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Geology (Eng. 441)	2
Theoretical Hydraulics (Eng. 116)	5
Concrete and Masonry Construction (Eng. 118)	3
Military Science (Ac. 604)	1
Mechanical Engineering Lab. (Eng. 382)	4
Thesis (Eng. 120)	9

Third Term

Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Geology (Eng. 441)	3
Sanitary Engineering (Eng. 119)	5
Masonry and Concrete Construction (Eng. 118)	3
Practical Hydraulics (Eng. 117)	3
Bridge and Structural Design (Eng. 114)	9
Military Science (Ac. 605)	1

ELECTRICAL ENGINEERING

Sophomore Class

First Term

English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Surveying (Eng. 102)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng 603)	3
Shop Work (Eng. 361)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term

	H.Wk.
English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 404)	5
Applied Mechanics (Eng. 312)	3
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term

English (Ac. 104)	3
Elementary Mechanics (Ac. 503)	3
Mathematics (Ac. 404)	5
Applied Mechanics (Eng. 312)	3
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Junior Class

First Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 201)	3
Electrical Meas. (Eng. 205)	1
Kinematics (Eng. 604)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 321)	1
Electrical Lab'y (Eng. 206)	4
Shop Work (Eng. 371)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 202)	3
Electrical Meas. (Eng. 205)	1
Strength of Materials (Eng. 322)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 321)	1
Electrical Lab'y (Eng. 207)	4
Shop Work (Eng. 371)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 203)	3
Electrical Tests (Eng. 205)	1
Strength Materials (Eng. 322)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 321)	1

	H.Wk.
Electrical Lab'y (Eng. 208)	4
Shop Work (Eng. 371)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

Senior Class

First Term

English (Ac. 108)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Electrical Eng. (Eng. 210)	3
Electrical Lab'y (Eng. 213)	4
Electrical Desig'ng (Eng. 211)	2
Telephone Eng. (Eng. 215)	2
Telephone Lab'y (Eng. 216)	2
Power Plant Eng. (Eng. 331)	5
Mech. Eng. Lab'y (Eng. 381)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 603)	1

Second Term

Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Electrical Eng. (Eng. 211)	3
Electrical Lab'y (Eng 213)	4
Electrical Designing (Eng. 211)	2
Telephone Eng. (Eng. 215)	2
Telephone Lab'y (Eng. 216)	2
Street Railways (Eng. 214)	2
Thermodynamics (Eng. 332)	5
Mech. Eng. Lab. (Eng. 382)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 604)	1

Third Term

Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Electrical Eng. (Eng. 212)	5
Electrical Eng. Lab. (Eng. 213)	4
Street Railways (Eng. 214)	2
Specifications and Contracts (Eng. 219)	2
Thermodynamics (Eng. 332)	5
Mech. Eng. Lab. (Eng. 383)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 605)	1

MECHANICAL ENGINEERING

Sophomore Class

First Term

	H.Wk.
English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Surveying (Eng. 102)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 361)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term

English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 404)	5
Applied Mechanics (Eng. 312)	3
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term

English (Ac. 104)	3
Elementary Mechanics (Ac. 503)	3
Mathematics (Ac. 404)	5
Applied Mechanics (Eng. 312)	3
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Junior Class

First Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Kinematics (Eng. 604)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Electrical Eng. (Eng. 204)	3
Elec. Eng. Lab'y (Eng. 206)	4
Practical Mechanics (Eng. 321)	1
Shop Work (Eng. 371)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Strength of Materials (Eng. 322)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4

	H.Wk.
Electrical Eng. (Eng. 204)	3
Elec. Eng. Lab'y (Eng. 207)	4
Practical Mechanics (Eng. 321)	1
Shop Work (Eng. 371)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Strength of Materials (Eng. 322)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Electrical Eng. (Eng. 204a)	3
Elec. Eng. Lab'y (Eng. 208)	4
Practical Mechanics (Eng. 321)	1
Shop Work (Eng. 371)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

Summer course, engineering 377. Taken immediately after commencement.

Senior Class

First Term

English (Ac. 108)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Electrical Eng. (a) (Eng 217)	3
Heating and Ventilating (Eng. 334)	2
Power Plant Eng. (Eng. 331)	5
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Elec. Eng. Lab'y (Eng. 218)	4
Mech. Eng. Lab'y (Eng. 381)	3
Military Science (Ac. 603)	1

Second Term

Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Hydraulics (Eng. 110)	5
Thermodynamics (Eng. 332)	5
Gas Engines (Eng. 335)	2
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Mech. Eng. Lab'y (Eng. 382)	4
Military Science (Ac. 604)	1

Third Term

	H.Wk.
Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Thermodynamics (Eng. 332)	5
Metallurgy (Agr. 104b)	3
Contracts and Spec. (Eng. 219)	2
Refrigeration (Eng. 336)	3
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Mech. Eng. Lab'y (Eng. 320)	4
Military Science (Ac. 605)	1

(a) Course 113 in civil engineering may be substituted.

MINING ENGINEERING

Sophomore Class

First Term

English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Plane Surveying (Eng. 102)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 361)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term

English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 404)	4
Topographic Surveying (Eng. 103)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term

English (Ac. 104)	3
Elementary Mechanics (Ac. 503)	3
Mathematics (Ac. 404)	4
Railroad Surveying (Eng. 104)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Surveying, (Eng. 105):

Sixty hours per week for four weeks immediately after commencement in summer camp.

Junior Class

First Term

	H.Wk.
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Mine Surveying (Eng. 401)	5
Geology (Eng. 435)	2
Drawing (Eng. 403)	4
Mineralogy Lab. (Eng. 431)	4
Chemical Lab'y (Agr. 110a)	6
Practical Mechanics (Eng. 321)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Applied Mechanics (Eng. 312)	3
Geology (Eng. 435)	2
Drawing (Eng. 403)	4
Mining Engineering (Eng. 402)	5
Mineralogy Laboratory (Eng. 432)	4
Chemical Lab'y (Agr. 110a)	6
Practical Mechanics (Eng. 321)	1
Military Tactics (Ac 601)	1
Military Drill (Ac. 600)	3

Third Term

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Applied Mechanics (Eng. 312)	3
Geology (Eng. 435)	2
Drawing (Eng. 403)	4
Mining Engineering (Eng. 402)	5
Mineralogy Laboratory (Eng. 433)	4
Chemical Lab'y (Agr 110a)	6
Practical Mechanics (Eng. 321)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Summer course, Engineering 404. Taken immediately after commencement.

Senior Class

First Term

	H.Wk.
English (Ac. 108)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Economic Geology (Eng. 442)	2
Mining Engineering (Eng. 411)	3
Electrical Eng. (Eng. 204)	2
*Machine Shop (Eng. 374)	4
Metallurgy (Agr. 104)	3
Drawing (Eng. 412)	3
Military Science (Ac. 603)	1
Assaying (Agr. 110c)	8
Metallurgical Lab'y (Eng. 413)	3

Second Term

Political Economy (Ac. 2)	2
Mathematics (Ac. 407)	3
Physics (Ac. 505)	2
Hydraulics (Eng. 110)	5
Mining Engineering (Eng. 411)	3
Electrical Eng. (Eng. 204)	2
*Machine Shop (Eng. 374)	4
Metallurgy (Agr. 104)	3
Drawing (Eng. 412)	3
Military Science (Ac. 604)	1
Assaying (Agr. 110c)	8
Metallurgical Lab'y (Eng. 413)	3

Third Term

Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Economic Geology (Eng. 443)	2
Mining Engineering (Eng. 411)	3
*Machine Shop (Eng. 374)	4
Metallurgy (Agr. 104 b)	3
Drawing (Eng. 412)	3
Military Science (Ac. 605)	1
Assaying (Agr. 110c)	8
Metallurgical Lab'y (Eng. 413)	3

*Electrical laboratory may be substituted.

ARCHITECTURE

Freshman Class

First Term

English (Ac. 101a, 102a,b)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 102a, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term

	H.Wk.
English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Agriculture (Agr. 201, 801)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

Sophomore Class

First Term

Architectural Drawing (Eng. 501)	6
Freehand Drawing (Eng. 511)	2
Building Materials and Specifications (Eng. 521)	4
Descriptive Geometry (Eng. 602)	4
Mathematics (Ac. 403)	5
English (Ac. 103)	3
Surveying (Eng. 102)	5
History (Ac. 202)	3
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term

Architectural Drawing (Eng. 501)	6
Freehand Drawing (Eng. 511)	2
Building Materials and Specifications (Eng. 521)	4
Descriptive Geometry (Eng. 602)	4
Mathematics (Ac. 404)	5
English (Ac. 104)	3
History (Ac. 202)	3
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term

Architectural Drawing (Eng. 501)	6
Freehand Drawing (Eng. 511)	2
Building Materials and Specifications (Eng. 521)	4
Architectural Shades and Shadows (Eng. 541)	4
Descriptive Geom. (Eng. 602)	4
Mathematics (Ac. 404)	5
English (Ac. 104)	3
Elementary Mechanics (Ac. 503)	3
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Junior Class

First Term

	H.Wk.
Architectural Drawing and Design (Eng. 502)	8
Freehand Drawing (Eng. 512)	2
Perspective (Eng. 542)	4
History of Architecture (Eng. 532)	2
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
French (Ac. 301a)	4
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

Architectural Drawing and Design (Eng. 502)	8
Freehand Drawing (Eng. 512)	2
History of Architecture (Eng. 532)	2
Mechanics of Materials (Eng. 110)	5
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
French (Ac. 301a)	3
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

Architectural Drawing and Design (Eng. 502)	8
Freehand Drawing (Eng. 512)	2
History of Architecture (Eng. 532)	2
Mechanics of Materials (Eng. 110)	5
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
French (Ac. 301b)	3
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Senior Class

First Term

Architectural Drawing and Design (Eng. 503)	12
Freehand Drawing (Eng. 513)	2
History of Architecture (Eng. 533)	2
Theory of Structures (Eng. 113)	5
Structural Design (Eng. 114a)	2
Mathematics (Ac. 407)	3
English (Ac. 108)	2
Physics (Ac. 505)	2
Military Science (Ac. 603)	2

Second Term

	H.Wk.
Architectural Drawing and Design (Eng. 503)	12
Freehand Drawing (Eng. 513)	2
History of Architecture (Eng. 533)	2
Concrete and Masonry Construction (Eng. 118)	3
Structural Design (Eng. 114a)	2
Mathematics (Ac. 407)	5
Political Economy (Ac. 2)	2
Physics (Ac. 505)	2
Military Science (Ac. 604)	1

Third Term

Architectural Drawing and Design (Eng. 503a)	12
Freehand Drawing (Eng. 513)	2
History of Architecture Eng. 533)	2
Masonry and Foundations (Eng. 118)	3
Structural Design (Eng. 114a)	4
Political Economy (Ac. 2)	2
Military Science (Ac. 605)	1

CHEMICAL ENGINEERING

Freshman Class

First Term

English (Ac. 101a, 102a,b)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 102a, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term

	H.Wk.
English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Agriculture (Agr. 201, 801)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

Sophomore Class

First Term

English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Descriptive Geometry (Eng. 602)	4
Surveying (Eng. 102)	5
Mechanic Arts (Eng. 361)	4
Chem. Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 404)	5
Descriptive Geometry (Eng. 602)	4
Applied Mech. (Eng. 312)	3
Mechanic Arts (Eng. 362)	4
Chem. Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 104)	3
Mathematics (Ac. 404)	5
Descriptive Geometry (Eng. 602)	4
Elementary Mech. (Ac. 501)	3
Applied Mechanics (Eng. 312)	3
Mechanic Arts (Eng. 362)	4
Chem. Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Junior Class

First Term

English (Ac. 107) or French or German	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	4
Military Drill (Ac. 600)	3

Second Term

	H.Wk.
English (Ac. 107) or French or German	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	4
Military Drill (Ac. 600)	3

Third Term

English (Ac. 107) or French or German	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	2
Industrial Chem. (Agr. 102a)	4
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	4
Military Drill (Ac. 600)	3

Senior Class

First Term

English (Ac. 108)	2
Physical Chem. (Agr. 108)	2
German or French	3
Economic Geology (Eng. 442)	2
Metallurgy (Agr. 104)	3
Theoretical Chem. (Agr. 107)	2
Electrical Eng. (Eng. 204)	2
Military Science (Ac. 603)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 431)	4
Metallurgical Lab'y (Eng. 413)	3

Second Term

	H.Wk.
Political Economy (Ac. 2)	2
Physical Chem. (Agr. 108)	2
German or French	3
Metallurgy (Agr. 104)	3
Electrical Eng. (Eng. 204)	2
Gas Engines (Eng. 335)	2
Engineering Chem. (Agr. 106)	2
Military Science (Ac. 604)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 432)	4
Metallurgical Lab'y (Eng. 413)	3

Third Term

Political Economy (Ac. 2)	2
Physical Chem. (Agr. 108)	2
German or French	3
Economic Geology (Eng. 443)	2
Metallurgy (Agr. 104b)	3
Electrical Eng. (Eng. 204a)	2
Engineering Chem. (Agr. 106)	2
Military Science (Ac. 605)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 433)	4
Metallurgical Lab'y (Eng. 413)	3

CHEMISTRY AND METALLURGY

Freshman Class

First Term

English (Ac. 101a, 102a,b)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	4
Chemistry (Agr. 101)	3
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 102a, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Agriculture (Agr. 801, 201)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

Sophomore Class

Students in the sophomore class in this course may take either the course prescribed for sophomore students in chemical engineering or that prescribed for students pursuing the course in agriculture.

Junior Class

First Term

	H. Wk.
English (Ac. 107)	3
Bacteriology and Bact. Lab'y (Vet. 108)	6
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Military Drill (Ac. 600)	3

Second Term

English (Ac. 107)	3
Bacteriology and Bact. Lab'y (Vet. 108)	6
Physics (Ac. 504)	3
Organic Chem. (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Military Drill (Ac. 600)	3

Third Term

English (Ac. 107)	3
Physics (Ac. 504)	3
Organic Chem. (Agr. 103a)	2
Industrial Chem. (Agr. 102a)	4
Geology (Eng. 435)	2
Military Science (Ac. 602)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	6
Military Drill (Ac. 600)	3

Senior Class

First Term

	H. Wk.
English (Ac. 108)	2
Physical Chem. (Agr. 108)	2
German or French	3
Economic Geology (Eng. 408)	2
Metallurgy (Agr. 104)	3
Theoretical Chem. (Agr. 107)	2
Advanced Inorganic Chem. (Agr. 111)	2
Military Science (Ac. 603)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 401)	4
Metallurgical Lab'y (Eng. 413)	3

Second Term

Political Economy (Ac 2)	2
Physical Chemistry (Agr. 108)	2
German or French	3
Economic Geology (Eng. 408)	2
Metallurgy (Agr. 104b)	3
Advanced Inorganic Chemistry (Agr. 111)	2
Engineering Chem. (Agr. 106)	2
Military Science (Ac. 604)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 401)	4
Metallurgical Lab'y (Eng. 413)	3

Third Term

Political Economy (Ac. 2)	2
Physical Chemistry (Agr. 108)	2
German or French	3
Economic Geology (Eng. 408)	2
Metallurgy (Agr. 104)	3
Advanced Inorganic Chemistry (Agr. 111)	2
Engineering Chem. (Agr. 106)	2
Military Science (Ac. 605)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 401)	4
Metallurgical Lab'y (Eng. 412)	3

TWO YEAR COURSE IN MECHANIC ARTS

First Year

First Term

English (special course)	5
History (special course)	2
Mathematics (special course)	10
Drawing (Eng. 601)	3
Shop Work (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term

English (special course)	5
History (special course)	2
Mathematics (special course)	10
Drawing (Eng. 601)	3
Shop Work (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term

	H.Wk.
English (special course)	5
History (special course)	2
Mathematics (special course)	10
Drawing (Eng. 601)	3
Shop Work (Eng. 353)	6
Military Drill (Ac. 600)	3

Second Year

First Term

	H.Wk.
English (special course)	3
Mathematics (special course)	5
Physics (Ac. 501)	3
Drawing (Eng. 603)	3
Surveying (Eng. 101)	5
Shop Work (Eng. 361, 371)	12
Military Drill (Ac. 600)	3

Second Term

	H.Wk.
English (special course)	3
Mathematics (special course)	5
Physics (Ac. 501)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 362, 371)	12
Military Drill (Ac. 600)	3

Third Term

	H.Wk.
English (special course)	3
Mathematics (special course)	5
Elementary Mechanics (Ac. 503)	3
Drawing (Eng. 603)	4
Shop Work (Eng. 362, 371)	12
Military Drill (Ac. 600)	3

TWO YEAR COURSE IN APPLIED ELECTRICITY

First Year

First Term

	H.Wk.
English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Engines and Boilers (Eng. 381)	3
Drawing (Eng. 601)	3
Electrical Lab'y (Eng. 206)	4
Shop Work (Eng. 361)	4
Power Plant (Eng. 220)	4

Second Term

	H.Wk.
English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Gas Engines (Eng. 382)	3
Drawing (Eng. 603)	3
Electrical Lab'y (Eng. 207)	4
Shop Work (Eng. 362)	4
Power Plant (Eng. 220)	4

Third Term

	H.Wk.
English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 205)	3
Trans. Power (Eng. 383)	3
Drawing (Eng. 603)	3
Electrical Lab'y (Eng. 208)	4
Shop Work (Eng. 362)	4
Power Plant (Eng. 220)	4

Second Year

First Term

	H.Wk.
English (special course)	3
Mathematics (Ac. 401)	5
Electrical Eng. (Eng. 217)	4
Kinematics (Eng. 604)	3
Practical Mech. (Eng. 321)	1
Drawing (Eng. 606)	3
Electrical Lab'y (Eng. 218)	4
Shop Work (Eng. 362)	4
Power House (Eng. 220)	4

Second Term

	H.Wk.
English (special course)	3
Electrical Eng. (Eng. 217a)	4
Applied Mechanics (Eng. 312)	3
Practical Mechanics (Eng. 321)	1
Drawing (Eng. 606)	4
Electrical Lab'y (Eng. 218a)	4
Shop Work (Eng. 374)	4
Power House (Eng. 220)	4

Third Term

	H.Wk.
English (special course)	3
Street Railways (Eng. 214)	2
Electrical Eng. (Eng. 217b)	4
Applied Mechanics (Eng. 312)	3
Practical Mechanics (Eng. 321)	1
Drawing (Eng. 606)	4
Electrical Lab'y (Eng. 218b)	4
Shop Work (Eng. 374)	4
Power House (Eng. 220)	4

SPECIAL COURSE FOR ROAD FOREMEN AND INSPECTORS

First Term

	H.Wk.
Mathematics (special course)	5
Drawing (Eng. 601, 603)	6

	H.Wk.
Surveying (Eng. 102)	5
Roads and Pavements (Eng. 107)	5
Mechanic Arts (Eng. 351 or 361)	6

Second Term

Mathematics (special course)	5
Drawing (Eng. 601, 603)	6
Surveying (Eng. 102)	5
Roads and Pavements (special course)	3
Road Materials Lab'y (Eng. 108)	3
Mechanic Arts (Eng. 352 or 362)	6

Third Term

Mathematics (special course)	5
Drawing (Eng. 601, 603)	6
Surveying (Eng. 102)	5
Roads and Pavements (special course)	3
Road and Street Improvements (Eng. 109)	3

SPECIAL ONE YEAR COURSE IN WIRELESS TELEGRAPHY

First Term

	H.Wk.
English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Engines and Boilers (Eng. 381)	3
Drawing (Eng. 601)	3
Electrical Lab'y (Eng. 206)	4
Shop Work (Eng. 361)	4
Wireless Telegraphy (Eng. 221)	4

Second Term

English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Gas Engines (Eng. 382)	3
Drawing (Eng. 603)	3
Electrical Lab'y (Eng. 207)	4
Shop Work (Eng. 362)	4
Wireless Telegraphy (Eng. 221)	4

Third Term

English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 205)	3
Trans. Power (Eng. 383)	3
Drawing (Eng. 603)	3
Electrical Lab'y (Eng. 208)	4
Shop Work (Eng. 362)	4
Wireless Telegraphy (Eng. 221)	4

COLLEGE OF AGRICULTURAL SCIENCES

AGRICULTURE

Freshman Class

First Term

	H.Wk.
English (Ac. 101a, 102a,b)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term

English (Ac. 102a, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Elementary Physics (Ac. 501)	3
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term

	H.Wk.
English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Agriculture (Agr. 801, 201)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

Sophomore Class

First Term

English (a) (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Botany and Botany Laboratory (Agr. 301)	6
Physiology (Vet. 101)	2
Organic Chemistry (Agr. 103b)	2
Stock Judging (Agr. 802)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term

	H.Wk.
English (a) (Ac. 104)	3
History (Ac. 202)	3
Surveying (Eng. 101)	5
Botany and Botany Laboratory (Agr. 301)	6
Physiology (Vet. 101)	2
Stock Judging (Agr. 803)	2
Agriculture (Agr. 202)	2
Organic Chemistry (Agr. 103b)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Third Term

English (a) (Ac. 104)	3
Surveying (Eng. 101)	2
Botany and Botany Laboratory (Agr. 301)	6
Vertebrate Zoology (Agr. 705)	3
Physiology (Vet. 101)	2
Agriculture (Agr. 203)	4
Agricultural Chem. (Agr 105)	5
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

(a) Latin may be substituted.

Junior Class

First Term

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
*Dairying (c) (Agr. 804)	6
General Bacteriology and Laboratory (Agr. 302)	6
*Veterinary Science and Veterinary Lab'y (a, c) (Vet. 102)	5
Agriculture and Agricultural Lab'y (c) (Agr. 204)	4
†Horticulture and Horticultural Lab'y (c) (Agr. 601, 601a)	6
Geology (Eng. 434)	2
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

	H.Wk.
English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Botany and Botany Laboratory (Agr. 303a)	6
*Veterinary Science and Veterinary Lab'y (a, c) (Vet. 102)	5
*Animal Husbandry (c) (Agr. 805-806)	6
†Horticulture and Horticultural Lab'y (c) (Agr. 602, 603)	7
Geology (Eng. 434)	2
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Botany and Botany Laboratory (Agr. 303b)	9
*Veterinary Science and Veterinary Lab'y (a, c) (Vet. 102)	5
*Animal Husbandry (c) (Agr. 805, 807)	4
Agriculture and Agricultural Laboratory (c) (Agr. 205)	4
†Horticulture and Horticultural Lab'y (c)(d) (Agr. 603a, 604)	7
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

(a) French, German or Latin may be substituted

(c) Chemical laboratory, Agricultural 110b, may be substituted.

*Required of students who expect to specialize in animal industry.

†Required of students who expect to specialize in horticulture.

(d) Elective.

Senior Class

The studies of the course in Agriculture are divided into five groups, as follows:

Group "A," agriculture: Gives special prominence to crops, soils, and farm machinery.

Group "B," horticulture: Gives special reference to fruit growing, trucking, and landscape gardening.

Group "C," animal industry: Gives special prominence to all work pertaining to live stock.

Group "D," agricultural chemistry: Especially designed to prepare students for experiment station and fertilizer control work.

Group "E," botany: Designed to train students for station work or to pursue advanced work in botany.

The elective work in each group must be approved at the beginning of the senior year by the president and the professor in charge, and with the required work must aggregate at least twenty-one hours, counting two hours laboratory equal to one hour.

The giving of an elective course will be optional with the professor in charge unless it be elected by at least four students.

GROUP "A," AGRICULTURE

First Term

	H.Wk.
Agr. and Agr. Lab. (Agr. 206)	4
Entomology and Ent. Laboratory (Agr. 701, 702)	5
Military Science (Ac. 603)	1
German (a) (Ac. 305a)	4
Thesis (Agr. 209)	2

Second Term

	H.Wk.
Agr. and Agr. Lab. (Agr. 212, 214)	4
Forestry and Forestry Laboratory (Agr. 608)	5
Military Science (Ac. 604)	1
German (a) (Ac. 305b)	3
Thesis (Agr. 209)	2

Third Term

	H.Wk.
Agr. and Agr. Lab. (Agr. 208)	4
Entomology and Ent. Lab'y (Agr. 703, 704)	5
Military Science (Ac. 605)	1
German (a) (Ac. 305c)	4
Thesis (Agr. 209)	2

(a) French may be substituted.

Electives: The equivalent of at least seven hours from the following subjects:

First Term

	H.Wk.
Soils and Soils Lab. (Agr. 211)	5
Cotton (Agr. 206)	4
Animal Husbandry (Agr. 808, 809, 812)	6
Hort. and Hort. Lab. (Agr. 605)	4
Plant Breeding and Canning (Agr. 610)	4
Botany and Botany Lab'y (Agr. 304)	6
Botany and Botany Lab'y (Agr. 307)	6
Vet. Science and Vet. Lab'y (Vet. 102)	5
Industrial Chem. (Agr. 102a)	3
French (Ac. 302a)	4
Physics (Ac. 505)	2
Chemical Lab'y (Agr. 110)	6
Mathematics (Ac. 405, 406 or 407)	3

Second Term

	H.Wk.
Soils and Soils Lab. (Agr. 211)	5
Agriculture (Agr. 207)	4
Animal Husbandry (Agr. 809, 810, 814)	6
Horticulture (Agr. 608)	5
Botany and Botany Lab'y (Agr. 304)	6
Botany and Botany Lab'y (Agr. 305)	6
Vet. Science and Vet. Lab'y (Vet. 102)	5
Industrial Chem. (Agr. 102a)	3
French (Ac. 302b)	3
Chemical Lab'y (Agr. 110)	6
Mathematics (Ac. 405, 406 or 407)	5
Forestry and Forestry Lab'y (Agr. 609)	5

Third Term

	H.Wk.
Soils and Soils Lab. (Agr. 211)	5
Agriculture (Agr. 208)	4
Animal Husbandry (Agr. 809, 811)	4
Horticulture and Horticulture Lab'y (Agr. 606)	5
Botany and Botany Lab'y (Agr. 306)	6
Vet. Science and Vet. Lab'y (Vet. 102)	5
Industrial Chem. (Agr. 102a)	3
French (Ac. 302c)	4
Chemical Lab'y (Agr. 110)	6
Mathematics (Ac. 405, 406 or 407)	5

GROUP "B," HORTICULTURE

First Term

	H.Wk.
Horticulture and Horticulture Lab'y (Agr. 605, 607)	7

	H. Wk.
Entomology and Ent. Lab'y (Agr. 701, 702)	5
Military Science (Ac. 603)	1
German (a) (Ac. 306a)	3
Thesis (Agr. 610)	

Second Term

Horticulture and Horticulture Lab'y (Agr. 608, 609)	8
Forestry and Forestry Lab'y (Agr. 609)	5
Military Science (Ac. 604)	1
German (a) (Ac. 306b)	4
Thesis (Agr. 610)	

Third Term

Horticulture and Horticulture Lab'y (Agr. 609)	7
Entomology and Ent. Lab'y (Agr. 703, 704)	5
Military Science (Ac. 605)	1
German (a) (Ac. 306c)	4
Thesis (Agr. 610)	

Electives: The equivalent of at least five hours from the subjects as listed under Group "A."

(a) French or English and Political Economy and one additional subject may be substituted.

GROUP "C," ANIMAL HUSBANDRY

First Term

Animal Husbandry (Agr. 808, 809)	4
Animal Hus. Lab'y (Agr. 812, 813)	5
Entomology and Entomology Lab'y (Agr. 701, 702)	5
Military Science (Ac. 603)	1
German (a) (Ac. 306a)	4
Thesis	

Second Term

Animal Husbandry (Agr. 809, 813, 814)	7
Animal Hus. Lab'y (Agr. 810)	2
Military Science (Ac. 604)	1
German (a) (Ac. 306b)	3
Thesis	

Third Term

	H. Wk.
Animal Husbandry (Agr. 809, 811, 813)	7
Entomology and Entomology Lab'y (Agr. 703, 704)	5
Military Science (Ac. 605)	1
German (a) (Ac. 306c)	4
Thesis	

Electives: The equivalent of at least six hours from the subjects listed under Group "A," or the Third Year Course in Veterinary Medicine.

(a) French may be substituted.

(b) Meat and milk inspection may be substituted.

GROUP "D," AGRICULTURAL CHEMISTRY

First Term

Chemical Lab'y (Agr. 110)	6
Entomology (Agr. 701, 702)	5
Military Science (Ac. 603)	1
German (a) (Ac. 306a)	4

Second Term

Chemical Lab'y (Agr. 110)	6
Forestry and Forestry Lab'y (Agr. 608)	5
Military Science (Ac. 604)	1
German (a) (Ac. 306b)	3

Third Term

Chemical Lab'y (Ac. 110)	6
Entomology (Agr. 703, 704)	5
Military Science (Ac. 605)	1
German (a) (Ac. 306c)	4

Electives: The equivalent of at least seven hours from the subjects as listed under Group "A."

(a) French may be substituted.

GROUP "E," BOTANY

First Term

German (a) (Ac. 306a)	4
Botany and Botany Lab'y (Agr. 304)	6
Soils and Soils Lab'y (Agr. 211)	5
Entomology (Agr. 701, 702)	5
Military Science (Ac. 603)	1

Second Term

German (a) (Ac. 306b)	3
Botany and Botany Lab'y (Agr. 304 or 305)	6
Soils and Soils Lab'y (Agr. 211)	5
Forestry and Forestry Lab'y (Agr. 609)	5
Military Science (Ac. 604)	1

Third Term

	H. Wk.
German (a) (Ac. 306c)	4
Botany and Botany Lab'y (Agr. 306)	6
Soils and Soils Lab'y (Agr. 211)	5
Entomology (Agr. 702)	5
Military Science (Ac. 605)	1

Electives: The equivalent of at least six hours from the subjects listed under Group "A," subject to the direction of the professor.

(a) French may be substituted.

TWO YEAR COURSE IN AGRICULTURE

First Year

First Term

	H. Wk.
Corn (Agr. 204)	4
Dairying (Agr. 816)	6
Veterinary Science (Vet. 102)	5
Chemistry (Agr. 101)	4
English (special course)	3
Physiology (Vet. 101)	2
Livestock Feeding (Agr. 817)	2
*Chemical Lab'y (Agr. 110a)	6
Military Drill (a) (Ac. 600)	3

Second Term

	H. Wk.
Agriculture (Agr. 202)	2
Veterinary Science (Vet. 102)	5
Chemistry (Agr. 101)	4
English (special course)	3
Physiology (Vet. 101)	2
Livestock Management (Agr. 818)	2
Livestock Feeding (Agr. 817)	2
Judging Livestock (Agr. 819)	4
*Chemical Lab'y (Agr. 110a)	6
Military Drill (a) (Ac. 600)	3

Third Term

	H. Wk.
Forage Plants (Agr. 203)	4
Veterinary Science (Vet. 102)	5
Chemistry (Agr. 101)	4
English (special course)	3
Physiology (Vet. 101)	2
Livestock Management (Agr. 818)	2
Judging Beef Cattle (Agr. 820)	2
Livestock Feeding (Agr. 817)	2
Agriculture (Agr. 203)	4
*Chemical Lab'y (Agr. 110a)	6
Military Drill (a) (Ac. 600)	3

(a) Special agricultural students who are of age may be excused from drill.

*Or Mechanic Arts.

NOTE.—In case students in agriculture have conflicts in schedule, satisfactory substitutes will be accepted.

Second Year

First Term

	H. Wk.
Poultry (Agr. 822)	2
Veterinary Science (Vet. 102)	5
Insects (Agr. 701, 702)	5
Organic Chem. (Agr. 103 b)	2
Livestock Judging (Agr. 821)	4
Botany and Botany Lab'y (Agr. 301)	6
Cotton (Agr. 206)	4
Chemical Lab'y (Agr. 110b)	6

Second Term

	H. Wk.
Agriculture (Agr. 212)	2
Veterinary Science (Vet. 102)	5
Swine Judging (Agr. 823)	4
Meats (Agr. 824)	4
Organic Chem. (Agr. 103 b)	2
Botany and Botany Lab'y (Agr. 301)	6
Chemical Lab'y (Agr. 110b)	6
Forestry (Agr. 609)	4

Third Term

	H. Wk.
Farm Management (Agr. 208)	4
Bacteriology (Vet. 108)	6
Insects (Agr. 703, 704)	5
Vegetable Gardening (Agr. 603a)	6
Principles of Breeding (Agr. 825)	2
Agr. Chemistry (Agr. 105)	5
Sheep Judging (Agr. 826)	2
Botany and Botany Lab'y (Agr. 301)	6
Chemical Lab'y (Agr. 110b)	6
Hort. Lab'y (Agr. 609)	4

PHARMACY

Freshman Class

First Term

	H. Wk.
English (102a)	3
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 401)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term

	H.Wk.
English (Ac. 102b)	3
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term

English (102b)	3
History (Ac. 201)	2
Latin (Ac. 205)	3
Mathematics (Ac. 402)	5
Agriculture (Agr. 801, 201)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	3
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

Sophomore Class

First Term

Latin (Ac. 210)	5
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Botany and Botany Lab'y (Agr. 301)	6
Drawing (Eng. 603)	3
Physiology (Vet. 101)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term

Latin (Ac. 210)	5
History (Ac. 202)	3
English (Ac. 104)	3
Drawing (Eng. 603)	3
Botany and Botany Lab'y (Agr. 301)	6
Physiology (Vet. 101)	2
Chemical Lab'y (Ac. 110a)	6
Military Drill (Ac. 600)	3

Third Term

Latin (Ac. 210)	5
English (Ac. 104)	3
Drawing (Eng. 601)	3
Botany and Botany Lab'y (Agr. 306)	6
Zoology (Agr. 705)	3
Physiology (Vet. 101)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Junior Class

First Term

	H.Wk.
English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Pharmacy (Agr. 401a)	3
Pharmaceutical Lab'y (401b)	8
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110b)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Pharmacy (Agr. 401a)	3
Pharmaceutical Laboratory (Agr. 401b)	8
Phar. Chem. (Agr. 406)	2
Pharmacognosy (Agr. 402)	3
Chemical Lab'y (Agr. 110b)	6
Military Tactics (Ac, 601)	1
Military Drill (Ac. 600)	3

Third Term

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Pharmacy (Agr. 401a)	3
Pharmaceutical Laboratory (Agr. 401b)	8
Phar. Chem. (Agr. 406)	2
Pharmacognosy (Agr. 402)	3
Chemical Lab'y (Agr. 110b)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

(a) French or German may be substituted.

Senior Class

First Term

Bacteriology and Bact. Lab'y (Vet. 108)	6
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	5
Adv. Pharmacog. (Agr. 404)	3
Commercial Pharmacy (Agr. 404a)	1
Military Science (Ac. 603)	1
Chemical Lab'y (Agr. 110c)	6
Pharmaceutical Laboratory (Agr. 403b)	15

Second Term

Bacteriology and Bact. Lab'y (Vet. 108)	6
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 405)	3

	H.Wk.
Commercial Pharmacy (Agr. 404a)	1
Military Science (Ac. 604)	1
Chemical Lab'y (Agr. 110c)	6
Pharmaceutical Laboratory (Agr. 403b)	15

Third Term

Therapeutics (Vet. 120)	3
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 405)	3
Commercial Pharmacy (Agr. 404a)	1
Military Science (Ac. 605)	1
Toxicology (Agr. 110e)	6
Urinalysis (Vet. 117)	3
Pharmaceutical Laboratory (Agr. 403b)	15

TWO YEAR COURSE IN PHARMACY

First Year

First Term

English (a) (special course)	3
Chemistry (Agr. 101)	4
Physiology (Vet. 101)	2
Pharmacy (Agr. 401a)	3
Botany and Botany Lab'y (Agr. 301)	6
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110a,b)	8
Pharmaceutical Laboratory (Agr. 401b)	8
Military Drill (Ac. 600)	3

Second Term

English (a) (special course)	3
Chemistry (Agr. 101)	4
Phar. Chem. (Agr. 406)	2
Physiology (Vet. 101)	2
Pharmacy (Agr. 401a)	3
Pharmacognosy (Agr. 402)	4
Botany and Botany Lab'y (Agr. 301)	6
Chemical Lab'y (Agr. 110a,b)	8
Pharmaceutical Laboratory (Agr. 401b)	8
Military Drill (Ac. 600)	3

Third Term

	H.Wk.
English (special course)	3
Botany and Botanical Lab'y (Agr. 306)	6
Chemistry (Agr. 101)	4
Phar. Chem. (Agr. 406)	2
Physiology (Vet. 101)	2
Pharmacy (Agr. 401a)	3
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110a,b)	8
Pharmaceutical Laboratory (Agr. 303)	8
Military Drill (Ac. 600)	3

(a) Latin may be substituted.

Second Year

First Term

Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	3
Pharmaceutical Laboratory (Agr. 403b)	15
Organic Chem. (Agr. 103a)	2
Chemical Lab'y (Agr. 110c)	6
Bacteriology (Vet. 108)	6
Military Drill (Ac. 600)	3

Second Term

Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	3
Pharmaceutical Laboratory (Agr. 403b)	15
Organic Chem. (Agr. 103a)	2
Chemical Lab'y (Agr. 110c)	6
Bacteriology (Vet. 108)	6
Military Drill (Ac. 600)	3

Third Term

Pharmacy (Agr. 403a)	5
Prescriptions (Agr. 404)	3
Pharmaceutical Laboratory (Agr. 403b)	15
Organic Chem. (Agr. 103a)	2
Toxicology (Agr. 110e)	7
Therapeutics (Agr. 521)	3
Military Drill (Ac. 600)	1

THREE YEAR COURSE IN PHARMACY

In the first and second years the same studies are prescribed as in the Two-Year Course.

Third Year

Entire Session

Pharmaceutical Chemistry and Lab'y (Agr. 405)	20
Chemistry and Chem. Lab'y (Agr. 107, 110)	15
Bacteriological Laboratory (Vet. 108)	3

COLLEGE OF VETERINARY MEDICINE AND SURGERY

VETERINARY MEDICINE

First Year

First Term

	H.Wk.
General Chem. (Agr. 101)	4
Physiology (Vet. 101)	2
English (Ac. 102a)	3
Anatomy and Anat. Lab'y (Vet. 119)	12
Histology (Vet. 104)	5
Livestock Feeding (Agr. 817)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term

General Chem. (Agr. 101)	4
Physiology (Vet. 101)	2
English (Ac 102b)	3
Anatomy and Anat. Lab'y (Vet. 119)	15
Histology (Vet. 104)	5
Stock Feeding (Agr. 817)	2
Live Stock Management (Agr. 818)	2
Chemical Lab'y (Agr. 110b)	6
Military Drill (Ac. 600)	3

Third Term

General Chem. (Agr. 101)	4
Physiology (Vet. 101)	2
English (Ac. 102b)	3
Live Stock Management (Agr. 818)	2
Anatomy and Anat. Lab'y (Vet. 119)	14
Embryology (Vet. 105)	5
Chemical Lab'y (Agr. 110b)	6
Military Drill (Ac. 600)	3

Second Year

First Term

Pharmacy (Agr. 403)	2
Pharmacy Lab'y (Agr. 403a)	8
Vet. Physiology (Vet. 106)	3
Bacteriology and Bact. Lab'y (Vet. 108)	6
Obstetrics (Vet. 110)	2
Vet. Medicine (Vet. 123)	3
Anatomy and Clinical Lab'y (Vet. 119, 122)	12
Military Drill (Ac. 600)	3

Second Term

	H.Wk.
Pharmacy (Agr. 403)	5
Pharmacy Lab'y (Agr. 403a)	5
Vet. Physiology (Vet. 106)	2
Bacteriology, Pathology and Lab'y (Vet. 108, 109)	6
Obstetrics and Surgery (Vet. 110. 111)	3
Vet. Medicine (Vet. 123)	3
Anatomy and Clinical Lab'y (Vet. 119, 122)	12
Military Drill (Ac. 600)	3

Third Term

Botany (Agr. 306)	6
Vet. Physiology (Vet. 106)	2
Therapeutics (Vet. 120)	2
Surgery (Vet. 121)	3
Vet. Medicine (Vet. 123)	3
Pathology and Path. Lab'y (Vet. 109)	6
Anatomy and Clinic Lab'y (Vet. 119, 122)	12
Military Drill (Ac. 600)	3

Third Year

First Term

Stock Breeding (Agr. 808)	2
Therapeutics (Vet. 120)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Infectious Diseases (Vet. 113)	2
Meat Inspection (Vet. 115)	2
Anatomy and Clinic Lab'y (Vet. 119, 122)	12
Thesis	4

Second Term

Dairying (Agr. 815)	3
Surgical Exercises (Vet. 112)	4
Therapeutics (Vet. 120)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Infectious Diseases (Vet. 113)	3
Meat Inspection (Vet. 115)	2
Animal Parasites (Vet. 114)	2
Clinic Laboratory (Vet. 122)	12
Thesis	4

Third Term

Toxicology (Agr. 110e)	7
Urinalysis (Vet. 117)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Milk Inspection (Vet. 116)	3
Animal Parasites (Vet. 114)	2
Clinic Laboratory (Vet. 122)	12
Thesis	4

SCHEDULE OF EXERCISES

		3. Agr. Chem. (3) 3. Ele. Mechanics (3) 3. History 4. English		History 3. Histology 4. English		
ourth—11-12	1. Botany 1. English (1) 1. Pol. Econ. (2,3) 2. Chem. Ind. and Org. 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 2. Vet. Medicine 3. Bot. Lab. (Agr.) 3. Arch. Drawing 3. Mech. Drawing	1. Bacteriology 1. Entomology (1,3) 1. Mental Science 1. Physics 1. Phys. Chemistry 2. Agriculture (1,3) 2. An. Industry (2) 2. Chem. (Org.) 2. Mathematics 2. Pharmacognosy 3. Botany (Vet.)	1. Botany 1. English (1) 1. Pol. Econ. (2,3) 1. Therapeutics (Phar.) (3) 2. Chemistry (Ind.) 2. Chem. (Org.) (2) 2. Gen. Path. (2,3) 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 3. Botany	1. Bacteriology 1. Botany (Agr.) 1. Physics 1. Phys. Chemistry 1. Mental Science 2. Agriculture (1,3) 2. An. Ind. (2) 2. Chemistry (Org.) 2. Mathematics 3. Botany (Vet.) 3. Desc. Geom. 3. Physiology	1. Military Science 2. Chemistry (Ind.) 2. Gen. Path. (2,3) 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 3. Bot. Lab. (Agr.) 3. Drawing (Arch.) 3. Drawing (Mech.) 4. Latin (1,2) 4. Mechanic Arts 4. Physics (1,2)	1. Machine Desig 1. Pharmaceutica Lab. 1,2,3. Clinics 3. Mechanic Arts 3. Phys. Lab. Chemical Lab. Elec. Lab. Field Work 3. Bot. Lab. (Ph 4. Mechanic Arts
P. M.—2-6	1. Mech. Lab. 1. Toxicology (3) 1,2,3. Anatomy Lab. 1,2,3. Chem. Lab. 1,2. Clinics (1,2) 1,2. Drawing (Arch.) 1,2. Elec. Lab. 1,2. Field Work 1,2. Machine Work 2. Botany (Agr.) 2. Pharmacy 3. Botany 3. Desc. Geometry 3. Mechanic Arts 3. Phys. Lab. 4. Mechanic Arts	2. Botany (Agr.) (2) 2. Mineralogical Lab. 1,2,3. Anatomy 1,2. Clinics 1,2. Drawing (Arch.) 1,2. History 3. An. Ind. Lab. (1,2) 3. Mech. Arts 3. Desc. Geometry 4. Mech. Arts Elec. Lab. Military Drill	1. Toxicology (3) 1,2,3. Anatomy 1,2,3. Chem. Lab. 1,2. Clinics 1,2. Drawing (Arch.) 1,2. Field Work 1,2. Machine Work 2. Botany (Agr.) (1,3) 2. An. Ind. Lab. (2) 2. Horticultural Lab. 3. Botany 3. Desc. Geometry 3. Public Speaking 3. Mechanic Arts 3. Phys. Lab. 4. Mechanic Arts Elec. Lab. Work	1. Telephone Lab. 1,2,3. Anatomy 1,2. Clinics 1,2. History 2. Elec. Lab. 2. Horticultural Lab. 2. Mineralogy Lab. 3. Desc. Geometry 3. Mechanic Arts 3. Agr. Lab. (3) 4. Mechanic Arts Military Drill	1. Mech. Lab. 1. Toxicology (3) 1,2,3. Anatomy 1,2,3. Chem. Lab. 1,2. Clinics 1,2,3. Field Work 1,2. Machine Work 2. Botanical Lab. 2. Drawing (Arch.) 2. French 2. Graphic Stat. (2) 3. Public Speaking 3. Mechanic Arts 3. Phys. Lab. 4. Mechanic Arts Elec. Laboratory.	

Chapel Service daily 7:45 A. M.

Number prefixed denotes classes—1 denotes senior;2, junior, etc. Numbers affixed—(1), (2), (3), denote terms.

SCHEDULE OF EXERCISES

Hrs	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
First—8-9	1. Econom. Geol (1, 3) 1. An. Chem. (Min.) 1. Bacteriology 1. Botany 1. Drawing 1. Elec. Engineering 1. German 1. Vet. Medicine (1, 2) 2. Arch. History 2. Bacteriology 1, 2) 2. Drawing 2. Gen. Path. (2, 3) 2. Mech. Eng. 2. Pharmacy 2. Horticultural Lab'y. 3. Agr. Chem. (3) 3. Org. Chem. (1,2) 3. Civil Eng. 3. Latin 3. Mechs. for Engineers (2,3) 4. Mathematics	1. Elec. Eng. 1. Infec. Dis. (1, 2) 1. Drawing 1,2. Gen. Geology 2. Botany Lab. (Phar.) 2. Drawing 2. German 2. Graphics 2. Machine Design 2. Mineralogy 2. Obstetrics (1,2) 3. Agriculture (2, 3) 3. An. Industry (1) 3. Latin 4. Mathematics	1. Econom. Geol. (1,3) 1. Botany 1. Drawing 1. Dairy Farming (2) 1. Elec. Eng. 1. German 1. Infec. Dis. (1,2) 1. Milk Inspec. (3) 2. Drawing 2. Mech. Eng. 2. Pharmacy 2. Graphics 2. Vet. Science 3. Agr. Chem. (3) 3. Org. Chem. (1,2) 3. Civil Eng. 3. Ext. Anatomy 3. Latin 3. Mechs. for Engineers (2,3) 1. Mathematics	1. Drawing 1. Elec. Eng. 1. Therapeutics (1,2) 1,2. Gen. Geology 2. Botany Lab. (Phar) 2. Drawing 2. German 2. Mech. Eng. 2. Mineralogy 3. Botany Lab. (Phar.) 3. Histology 3. Latin 3. Zoology (3) 3. Mechs. for Engineers (2,3) 4. Mathematics	1. Botany (Agr.) 1. Drawing 1. Elec. Eng. 1. German 1. Infec. Dis. (1,2) 1. Milk Inspec. (3) 1,2. Gen. Geology 2. Drawing 2. Machine Design 2. Pharmacy 2. Theory of Arch. 2. Vet. Science 3. Agr. Chem. (3) 3. Civil Eng. 3. Exterior Anatomy 3. Latin 4. Mathematics	1. Soils (1,3) 3. Public Speaking Military Drill
Second—9-10	1. An. Ind. Lab. 1. Bacteriology 1. Botany Lab. 1. Calculus 1. Elec. Eng. 1. Surgery (1,2) 2. Bacteriology (1,2) 2. Civil Eng. 2. Horticultural Lab. 2. Latin 2. Mining Eng. 2. Gen. Path. (2,3) 3. English 4. Chemistry	1. Agriculture 1. French 1. Mech. Eng. 1. Metallurgy 2. Botany (Agr.) 2. Civil Eng. 2. Elec. Eng. 2. Mach. D'sign (M.E.) 2. Mining Eng. 3. Desc. Geom. 3. Histology 3. Physiology 4. History	1. Botany Lab. 1. Calculus 1. Pharmacognosy 1. Soils 1. Vet. Medicine 2. An. Industry (3) 2. Civil Eng. 2. Elec. Eng. 2. Horticulture (1,2) 2. Latin 2. Mining Eng. 2. Surgery (3) 3. English 3. Histology ~~4. Chemistry~~	1. Forestry (2) 1. French 1. Horticulture (3) 1. Machine Design 1. Mech. Eng. 1. Metallurgy 1. Vet. Medicine 1. Vet. Science 2. Arch. History 2. Botany (Agr.) 2. Elec. Eng. 2. Civil Eng. 2. Mining Eng. 3. Botany Lab. (Phar.) 3. Agriculture (2,3) 3. An. Ind. (1) 3. Histology 4. History	1. Calculus 1. Soils 1. Vet. Science 2. An. Ind. (3) 2. Civil Eng. 2. Horticulture (1,2) 2. Latin 2. Machine Design 2. Mining Eng. 2. Vet. Medicine 3. English 4. Chemistry	1. Arch. Drawing 1. Eng. Chem. 1. Machine Design 1. Soils (1,3) 2. Arch. Drawing 2. Pharmacy
Third—10-11	1. An. Ind. Lab. 1. Arch. Eng. 1. Bacteriology 1. Botany Lab. 1. Civil Eng. 1. Latin 1. Therapeutics (2,3) 2. Bacteriology (1,2) 2. Gen. Path. (2,3) 2. Physics 3. Botany Lab. (Agr.) 3. Surveying (2) 4. English	1. An. Industry 1. Civil Eng. 1. Elec. Eng. (Min., Mech.) 1. Botany 1. Horticulture 1. Meat Inspection 1. Pharmacognosy 1. Telephone Eng. 2. Agr. Geology (1,2) 2. French 2. Mach. Design 2. Spec. and Bld'g Materials 3. An. Ind. 3. Agr. Chem. (3) 3. Ele. Mechanics (3) 3. History 4. English	1. Arch. Eng. 1. Botany Lab. 1. Civil Eng. 1. Eng. Contracts 1. Latin 1. Therapeutics (1,2) 2. Physics 1. Therapeutics (3) 3. Surveying (2) 3. Zoology (3) 4. English	1. An. Ind. 1. Botany 1. Civil Eng. 1. Elec. Eng. (Min., Mech.) 1. Pharmacognosy 1. Telephone Eng. 1. Vet. Medicine 2. French 2. Practical Mach. 2. Agr. Geology (1,2) 2. Spec. and Bld. Mtls. 3. Ele. Mech. (3) 3. Agr. Chem. (3) ~~3. History~~ 3. Histology 4. English	1. Latin 1. Arch. Eng. 1. Civil Eng. 1. Horticulture 1. Pharmacognosy 2. Obstetrics (1,2) 2. Physics 2. Therapeutics (3) 3. Bot. Lab. (Agr.) 3. Surveying (2) 4. English	1. Arch. Drawing 1. Machine Design 1. Soils (1,3) 1,2,3. Clinics 2. Arch. Drawing 3. Surveying (2,3) 3. Phys. Lab. Chemical Lab. Field Work Mechanic Arts Elec. Lab.
Fourth—11-12	1. Botany 1. English (1) 1. Pol. Econ. (2,3) 2. Chem. Ind. and Org 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 2. Vet. Medicine 3. Bot. Lab. (Agr.) 3. Arch. Drawing 3. Mech. Drawing 4. Agriculture (3) 4. Latin (1,2) 4. Mechanic Arts	1. Bacteriology 1. Entomology (1,3) 1. Mental Science 1. Physics 1. Phys. Chemistry 2. Agriculture (1,3) 2. An. Industry (2) 2. Chem. (Org.) 2. Mathematics 2. Pharmacognosy 3. Botany (Vet.) 3. Drawing (Arch.) 3. Drawing (Mech.) 3. Surveying (2,3) 4. Latin	1. Botany 1. English (1) 1. Pol. Econ. (2,3) 1. Therapeutics (Phar.) (3) 2. Chemistry (Ind.) 2. Chem. (Org.) (2) 2. Gen. Path. (2,3) 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 3. Botany 3. Ele. Mechanics (3) 3. History 4. Agriculture (3) 4. Latin (3) 4. Mechanic Arts 4. Physics (1,2)	1. Bacteriology 1. Botany (Agr.) 1. Physics 1. Phys. Chemistry 1. Mental Science 2. Agriculture (1,3) 2. An. Ind. (2) 2. Chemistry (Org.) 2. Mathematics 3. Botany (Vet.) 3. Desc. Geom. 3. Physiology 4. Latin	1. Military Science 2. Chemistry (Ind.) 2. Gen. Path. (2,3) 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 3. Bot. Lab. (Agr.) 3. Drawing (Arch.) 3. Drawing (Mech.) 4. Latin (1,2) 4. Mechanic Arts 4. Physics (1,2) 4. Agriculture	1. Machine Design 1. Pharmaceutical Lab. 1,2,3. Clinics 3. Mechanic Arts 3. Phys. Lab. Chemical Lab. Elec. Lab. Field Work 3. Bot. Lab. (Phar.) 4. Mechanic Arts
Fifth—12-1	1. Civil Eng. 1. Agriculture 1. Botany 1. Chemistry (Theo.) 1. Drawing (Arch.) 1. French 1. Meat Inspection 1. Mechanical Eng. 1. Mining Eng. 1. Pharmacy 2. Vet. Physiology 2. English 3. Mathematics 3. Surveying (2) 4. Drawing 4. Mechanic Arts	1. Forestry (2) 1. Geology 1. Mech. Eng. 1. Pharmacy 1. Therapeutics (1,2) 2. Arch. History 2. English 2. Vet. Physiology 3. Mathematics 3. Surveying (2,3) 4. Chemistry	1. Civil Eng. 1. Drawing (Arch.) 1. Entomology (1,3) 1. Mech. Eng. 1. Milk Inspec. (3) 1. Mining Eng. 1. Pharmacy 1. Spec. Path. (1,2) 2. Chem. (Analyt.) 2. German 2. Vet. Medicine 3. An. Industry 3. Mathematics 4. Drawing 4. Mechanic Arts	1. Geology 1. Mech. Eng. 1. Meat Inspection 1. Pharmacy 2. English 2. Graphics 2. Vet. Medicine 3. An. Industry 3. Mathematics 3. Surveying (2)	1. Civil Eng. 1. Botany 1. Drawing (Arch.) 1. Mech. Eng. 1. Dairy Farming (2) 1. Mining Eng. 1. Pharmacy 1. Surgery 1. Theoretical Chem. 2. Military Tactics 3.Histology 3. Zoology (3) 3. Mathematics 3. Surveying (2) 4. Drawing 4. Mechanic Arts	1,2,3. Clinics 3,4. Mechanic Arts Chemical Lab. Elec. Lab. Field Work.
P. M.—2-6	1. Civil Eng. 1. Struc. Des. (1,3) 1. Entomology (1,3) 1. Forestry (2) 1. Mech. Lab. 1. Toxicology (3) 1,2,3. Anatomy Lab. 1,2,3. Chem. Lab. 1,2. Clinics (1,2) 1,2. Drawing (Arch.) 1,2. Elec. Lab. 1,2. Field Work 1,2. Machine Work 2. Botany (Agr.) 2. Pharmacy 3. Botany 3. Desc. Geometry 3. Mechanic Arts 3. Phys. Lab. 4. Mechanic Arts	1. An. Ind. Lab. (2) 1. Horticultural (Lab.) 2. Agriculture (1,3) ~~2. Botany (Agr.) (2)~~ 2. Mineralogical Lab. 1,2,3. Anatomy 1,2. Clinics 1,2. Drawing (Arch.) 1,2. History 3. An. Ind. Lab. (1,2) 3. Mech. Arts 3. Desc. Geometry 4. Mech. Arts Elec. Lab. Military Drill	1. Struc. Des. (1,3) 1. An. Ind. Lab. 1. Mech. Lab. ~~1. Toxicology (3)~~ 1,2,3. Anatomy 1,2,3. Chem. Lab. 1,2. Clinics 1,2. Drawing (Arch.) 1,2. Field Work 1,2. Machine Work 2. Botany (Agr.) (1,3) 2. An. Ind. Lab. (2) 2. Horticultural Lab. 3. Botany 3. Desc. Geometry 3. Public Speaking 3. Mechanic Arts 3. Phys. Lab. 4. Mechanic Arts Elec. Lab. Work	1. Agriculture 1. Botany 1. Spec. and Bld. Mtls. 1. Telephone Lab. 1,2,3. Anatomy 1,2. Clinics 1,2. History 2. Elec. Lab. 2. Horticultural Lab. 2. Mineralogy Lab. 3. Desc. Geometry 3. Mechanic Arts 3. Agr. Lab. (3) 4. Mechanic Arts Military Drill	1. Struct. Des. (1,3) 1. Horticultural Lab. 1. Machine Design 1. Mech. Lab. 1. Toxicology (3) 1,2,3. Anatomy 1,2,3. Chem. Lab. 1,2. Clinics 1,2,3. Field Work 1,2. Machine Work 2. Botanical Lab. 2. Drawing (Arch.) 2. French 2. Graphic Stat. (2) 3. Public Speaking 3. Mechanic Arts 3. Phys. Lab. 4. Mechanic Arts Elec. Laboratory.	

Chapel Service daily 7:45 A. M.

Number prefixed denotes classes—1 denotes senior;2, junior, etc. Numbers affixed—(1), (2), (3), denote terms.

DESCRIPTION OF COURSES

ACADEMIC DEPARTMENTS

PHILOSOPHY AND POLITICAL ECONOMY.

PROFESSOR THACH.

The senior class pursue the study of intellectual science twice a week throughout the year, and political economy twice a week during the second and third terms. The instruction in this department is by lectures in combination with text-books.

1. Intellectual science: Psychology defined. Value in relation to moral culture, education, and natural sciences. The relation of the soul to matter. The arguments of the materialist. Counter arguments. The faculties of the soul. The nature of consciousness. Sense perception. Fancy. Imagination. Nature of conception. Language. Judgement. Reasoning. Deduction. Induction, etc. Porter's intellectual Science. *Two hours, entire session.*

2. Political economy: Value; production of wealth; land; labor; capital; division of labor; distribution of wealth; wages; trades unions; tariff; education, etc. Lectures by professor. Ely's Outlines of Economics. *Two hours, second and third terms.*

ENGLISH.

PROFESSOR WANNAMAKER.
PROFESSOR WEBB.
PROFESSOR RUTLAND.
INSTRUCTOR NICKERSON.
ASSISTANT WOOD.

The mastery of one's native language is a prerequisite to high attainment in any profession. In a technological institute, where only brief courses in foreign languages can be pursued by most of the students, this mastery of the native speech becomes, if possible, even more essential to future success than in the classical colleges. This consideration alone would justify compulsory courses in English in technological institutions, but when we add to this the great cultural value of the study of language and literature, the wisdom of these compulsory courses becomes obvious. The courses in English comprise drill in grammar for freshmen who have not mastered that subject, study of the theory of composition together with much practice in its application, a survey of the history of American and English literature, and an intensive study of certain of the greatest periods and authors in English literature.

Requirements in English for admission are set forth on page 55. No student is classed as regular in any course till he has met these requirements.

The requirements as to thesis and as to proficiency in English for certificates and diplomas are set forth on pages 69 and 191.

The following courses are offered:

101. (a) A college course in English grammar: The department of English considers a thorough mastery of English grammar so essential to all students, that for the present this course will be required of all freshmen except those taking Latin. Any member of the freshman class may, however, take an examination in this part of the freshmen English courses and, if he passes satisfactorily, may be admitted to course 101 (c), which is not open to those who take 101(a).

(b) A study of the origin and development of the English language: Textbook, Greenough and Kittredge's Words and their Ways in English Speech. *Two hours, third term.*

(c) An introductory course in the interpretation and appreciation of English poetry: Text-book, Palgrave's Golden Treasury. (Required of freshmen who pass in the examination on English grammar.) *Two hours, first term.*

102. (a) Composition and rhetoric: The principles of exposition, narration and description are studied. The students are required to apply these principles in set themes once a week and in frequent exercises. As often as possible the instructor holds personal conferences with students in order to correct, assist, and stimulate them. Text-book, Canby and Opdycke's Elements of Composition. *Two hours, first and second terms.* For students who take Latin, *three hours, first term.*

(b) American literature: A survey of the history of American literature together with the study of select masterpieces. The recitations will be devoted chiefly to the discussion of the literature assigned for study, but the students will be required to master a concise history of the subject and to keep notes on both the history and the selections. Text-book, Newcomer's American Literature. *One hour, first term; three hours, second and third terms.*

SOPHOMORE CLASS.

103. Composition and rhetoric: This course deals with the principles of argumentation. Students are required to submit weekly themes in argumentative form, and to take part in oral debates, and the course is concluded with a lengthy argument based upon material collected in the library. Text-book, Pattee's Practical Argumentation. *Three hours, first term.*

104. English literature: This course consists in the interpretive study of selected poems and critical study of selected prose, illustrating the whole of English literature. The history of the literature is taught by means of the biographies of the chief writers, and lectures on the characteristics of the chief periods. The students are required to keep full notes. Text-books, Hinchman and Gummere's Lives of Great English Writers; Newcomer and Andrew's Twelve Centuries of English Poetry and Prose.

106. Public speaking: The sophomore class is heard weekly throughout the year, twice for an hour and a half in rehearsal, and afterwards in the assembly hall before the student body.

JUNIOR CLASS.

107. In the junior and senior years students pursuing the general course form a section separate from the rest of the class. This section is required to do a greater amount of reading and of written work than the technical students. Each student pursuing a technical course may elect one of the three following courses, but the department reserves the right to omit a course in case only a very small number elect it. The entire section of general-course students may elect one of the three courses.

(a) Nineteenth century literature: The first half-year will be devoted to the study of the leading prose writers of the last century, and the second half-year to the leading poets. A great proportion of the time will be given to Carlyle, Ruskin, Arnold, Dickens, Thackeray, George Eliot, Tennyson and Browning. Text-books, a history of nineteenth century literature, to be announced; Carlyle's Sartar Resartus, Heroes and Hero Worship, Hampshire's Selections from Ruskin, with Notes; Arnold's Essays, Literary and Critical; Dickens' David Copperfield, Tale of Two Cities and Christmas Stories; Thackeray's Henry Esmond and Vanity Fair; Scott's Kenilworth; George Eliot's Mill on the Floss and Romola; Page's British Poets of the Nineteenth Century. *Three hours throughout the year.*

(b) English literature from 1750 to 1825: During the first term the origin and growth of the romantic movement will be studied and readings will be required from Gray, Goldsmith, Johnson, Burke, Cowper, Burns, Thomson and Collins. The origin of the novel will be briefly discussed, and one novel will be read from Fielding and Richardson each. The second and third terms will be devoted to a study of the romantic movement and close attention will be given to Wordsworth, Coleridge, DeQuincy, Lamb, Byron, Shelley and Keats. Readings will be required from Scott, Jane Austen, Hazlitt and Landor. Text-books, Phelps' Beginnings of the English Romantic Movement, Ward's English Poets, Vols. 3 and 4, Burke's Reflections on the French Revolution, Fielding's Tom Jones, Richardson's Clarissa Harlowe, DeQuincey's Confessions of an English Opium Eater, Lamb's Essays of Elia, Scott's Kenilworth, Jane Austen's Pride and Prejudice, Hazlitt's Lectures on the English Poets, Landor's Pericles and Hypatia. *Three hours throughout the year.*

(c) The essay and the novel: The first term will be devoted to a study of the origin and development of the English essay. Selected essays, representing the seventeenth and eighteenth centuries will be read, and much time will be devoted to the essay of the nineteenth century. The second and third terms will be devoted to the history of the novel. One novel will be studied from each of the following authors: Goldsmith, Jane Austen, Scott, Hawthorne, Charlotte Bronte, Dickens, Thackeray and George Eliot. The technique of the novel will be discussed in lectures. Each student will be required to report on one novel in addition to those read by the class. Text-books, the Everyman edition of A Century of English Essays; Cross's Development of the English Novel.

SENIOR CLASS.

Students pursuing the general course form a separate section. For technical students the following course is offered.

108. Shakespeare: The development of the English drama will be reviewed briefly through assigned reading, and lectures, and the life of Shakespeare will be included in the matter of the final examination, but the class room instruction will be devoted to the careful study of three of the plays. The technique of the drama is discussed with reference to these plays. Three additional plays are required for outside reading. Textbooks, Neilson and Thorndyke's The Facts About Shakespeare; the plays of Julius Caesar, Macbeth, The Tempest, King Lear, Hamlet and the Midsummer Night's Dream. *Two hours, first term.*

For general-course students the following course is offered:

109. A brief study of Spenser, Bacon, Shakespeare and Milton: A careful study will be made of at least one book of The Faerie Queen, a volume of Bacon's Essays, two plays of Shakespeare, and two books of Paradise Lost. Reading will be assigned dealing with the literary history of the periods covered, with the lives of the writers named above, and with the technique of the drama. In connection with the study of the drama, specimens of morality plays, miracle plays, and the earliest comedies and tragedies will be read, and representative plays of Shakespeare's predecessors will be taken up in class. Text-books, Neilson and Thorndyke's The Facts About Shakespeare; Macbeth, King Lear, Neilson's Chief Elizabethan Dramatists. Other texts to be announced.

110. Methods of teaching English: If a sufficient number of students apply to the head of the department, a course in methods of teaching English will be offered, the text-book and hours to be determined later.

GRADUATE STUDENTS.

The following courses have been given to graduate students:

(a) Shakespeare: Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV, Richard III, King John.

(b) Dryden's Poetical Works; Arnold's Dramatic Poesy, Yonge's Essay on Satire; Saintsbury's Dryden; Pope's Poetical Works; Pattison's Satire; Stephen's Pope; Gosse's From Shakespeare to Pope; and Eighteenth Century Literature.

(c) English literature of the eighteenth century:

Addison, Pope, Gray, Goldsmith, Burns, Cowper, and Burke.

(d) American literature: Longfellow, Lowell, Poe.

(e) The English essay: Bacon, Addison, Steele, Swift, Johnson, Goldsmith, Macaulay, DeQuincy, Lamb, Carlyle.

(f) Milton's Poetical Works: Life, Pattison, Brooke.

(g) Elizabethan, Jacobean and Caroline literature; Greene, Jonson, Marlowe, Webster, Beaumont and Fletcher, Brown, Herrick, Bunyan and others.

(h) English literature, 1832-1894.

(i) Chaucer.

(j) English prose fiction.

For the year 1914-1915, one of the following courses may be elected by the graduate class:

Anglo-Saxon: A study of the grammar and phonology of Anglo-Saxon, together with the reading of select prose and verse. The class will probably read a portion of Beowulf.

Chaucer: A study of the life and times of Chaucer together with the readings and critical study of a large portion of his collected writings.

Prose fiction: A study of the development of English fiction with special emphasis upon the modern novel.

HISTORY AND LATIN.

PROFESSOR PETRIE.
INSTRUCTOR MOORE.
INSTRUCTOR REYNOLDS.
ASSISTANT SELLERS.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements, and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Instruction is given by text-books, lectures and class discussion, but a constant effort is made to stimulate to wider reading and research in the library. The following courses are offered:

FRESHMAN CLASS.

201. History of the United States: The course consists of lectures and text-book work, and is somewhat advanced. All students who take it must have previously completed some school text-book on the history of the United States. Text-books: Hart's Formation of the Union; Wilson's Division and Reunion. *Two hours, entire session.*

SOPHOMORE CLASS.

202. History of Modern Europe: Required of all members of the sophomore class. Some previous knowledge of the subject is desirable, but not necessary. Text-book, Robinson and Beard's Development of Modern Europe. *Three hours, first and second terms.*

203. Ancient history: An extra course intended for those who are deficient on this subject. Text-book: Myer's General History, Part I. *Once a week, one term.*

204. A brief course in recent history: Not required of any students, but those who expect to take the general course may substitute it for botany or mechanics. Text-books: Robinson and Beard's Development of Modern Europe and current periodicals. *Three times a week, third term.*

SENIOR CLASS.

205. English constitutional history: A course for one year for members of the senior class. Text-book will be announced later.

JUNIOR AND SENIOR CLASSES.

206. Historical laboratory: An opportunity for advanced work in United States history, for those students of the general course who elect it as laboratory work, and for any others who are properly qualified.

The chief object kept in view is training in historical research and in the formation of independent but careful opinions based on the original sources of information, as well as on the standard authorities. Emphasis is laid on the importance of securing proper material for investigation, and every incentive is given to the collection and use of new documents, papers, and letters illustrative of Southern and especially of Alabama history. The method of work is as follows: Informal lectures are given on important and suggestive points, as: The cause of the Revolution; the Constitutional Convention; the War of 1812; the Missouri Compromise; the Monroe Doctrine; Texas and Mexico; the Compromise of 1850; the Kansas Struggle; the Dred Scott Decision; Secession. After each lecture a general discussion follows, and topics connected with it are assigned to the students with an outline of the points to be investigated. The final results are collected by each student according to his own judgment in his note-book, which is then passed in to the professor for correction and suggestion. Text-book: McDonald's Select Statutes. *Six hours, entire session.*

International Law: A brief course is offered for those students who expect to enter the army or navy. *One hour a week.*

GRADUATE COURSE.

207. Graduate students are expected to take part in the junior and senior discussions, and will also meet with the professor for conference about their work. Each year some special field is taken for investigation and discussion. Those who take history as their major study are expected to devote a large part of their time to research upon some topic upon which they can consult the original sources of information.

208. Teacher's course: Conferences every other week with those students who expect to teach history.

LATIN.

The objects kept in view in this department are: An accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives, an appreciation of Latin literature and an intelligent conception of Roman history and civilization, both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation. English passages based on a familiar author or illustrative of special constructions are put in Latin, both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class, a course of reading in English is prescribed descriptive of his life, work and times. The historical setting and the literary value of his writings are carefully discussed and frequent comparisons are made with modern authors.

In the freshman and sophomore classes the study of the language is the chief point. In the higher classes a broader view is taken. The junior class makes a special study of Roman history and Roman historians. The senior class studies Roman poetry and Roman life.

In the senior class a brief pedagogical course is given during the third term for those who expect to be teachers of Latin. This includes work on the forms and syntax, and in Caesar and Virgil.

The following courses are offered with the text-books named:

209. Freshman class: Exercises, Cicero, Sallust, or equivalent. Allen and Greenough's Latin Grammar. *Four hours, first and second terms; three hours, third term.*

210. Sophomore class: Livy. Allen and Greenough's Grammar, Bennett's Latin Composition. *Five hours, entire year.*

211. Junior class: Livy, Tacitus, grammar, Roman history, exercises. Allen and Greenough's Grammar, Botsford's History of Rome. *Three hours, entire year.*

212. Senior class: Horace, Plautus, Latin literature, grammar. Allen and Greenough's Grammar. *Three hours, entire year.*

213. Pedagogical course: During the spring term a pedagogical course is given in Latin. It is designed chiefly, but not exclusively, for members of the senior class. It includes a discussion of the methods of teaching forms and syntax, as well as concrete illustrations of the way to overcome the difficulties in Caesar and Virgil.

MODERN LANGUAGES.

PROFESSOR WIATT.

The chief aim in this department is to give the student a thorough and accurate knowledge of the elementary principles of the subjects taught, and to enable him to read with facility the ordinary French and German at sight. To train the ear, acquire a correct pronunciation and some facility in speaking, all recitations are supplemented, as far as practicable, by oral exercises in the languages themselves.

FRENCH.

The following regular courses are given:

JUNIOR CLASS.

301. (a) A course covering the essentials of grammar and pronunciation to enable the student to begin the reading of simple French prose. This course continues through the first term, three hours a week being given to the study of grammar and one hour to pronunciation and conversation. *Four hours, first term,*

(b) The second term includes a course of reading in simple prose (2 hours a week), and the continuation of grammar with translations of English into French (1 hour a week). *Three hours, second term.*

(c) During the third term the reading of more advanced selections in prose and poetry is begun (2 hours a week), grammar and composition (1 hour a week); and pronunciation and conversation (1 hour a week). *Four hours, third term.*

SENIOR CLASS.

302. (a) A course in reading: Corneille and modern French plays (2 hours a week); laws of grammar and composition (1 hour a week); pronunciation and conversation (1 hour a week). *Four hours, first term.*

(b) The second term is given to the study of Racine, and the reading of modern French literature (2 hours a week) and to continued study of the structure and syntactical features of the language in connection with translations into French. *Three hours, second term.*

(c) The third term includes a study of Moliere (1 hour a week); the history of French literature (1 hour a week); more advanced work in grammar and composition (1 hour a week); and pronunciation and conversation (1 hour a week). *Four hours, third term.*

303. Teachers' course: During the spring term the work of the senior class will be so modified or supplemented, as to include a short pedagogical course for students who expect to teach French. This will consist chiefly of elementary work in grammar and syntax and a study of the best methods of giving instruction in this subject. *Third term, senior year.*

GRADUATE STUDENTS.

304. Graduate course: Offered for students who wish to pursue the study of French beyond the scope to which

a two-year course necessarily limits them. In addition to the authors studied in the lecture room, a wide and extensive reading of literature is prescribed.

TEXT-BOOKS.

First Year: Frazer and Squair's Shorter French Course; Francois and Giroud's Simple French.

Second Year: Corneille, Racine, Moliere, selected modern French plays, Duval's Histoire de la Literature Francaise, Frazer and Squair's French Grammar, French Composition.

GERMAN.

The following regular courses are given:

JUNIOR CLASS.

305. (a) A course embracing the fundamental principles of grammar and the essentials of pronunciation leading to the intelligent reading and translation of simple German texts (3 hours a week), and exercises in pronunciation and conversation (1 hour a week). *Four hours, first term.*

(b) In the second term the reading of simple prose is begun (2 hours a week), and grammar and composition continued (1 hour a week). *Three hours, second term.*

(c) Reading of more difficult selections of prose and poetry is begun and continued throughout the third term (2 hours a week). Grammar and composition continued (1 hour a week), and conversational exercises (1 hour a week). *Four hours, third term.*

SENIOR CLASS.

306. (a) A course of reading in modern German (2 hours a week); structure and syntax of the language with translations into German (1 hour a week); conversation (1 hour a week). *Four hours, first term.*

(b) Schiller (2 hours a week); History of German literature and composition (1 hour a week.) *Three hours, second term.*

(c) German lyrics and ballads (2 hours a week). German literature (1 hour a week), composition and conversation (1 hour a week). *Four hours, third term.*

307. A course for students from the scientific schools, including readings of various scientific subjects, selected to meet the requirements of the class (2 hours a week), grammar and composition (1 hour a week) and conversation (1 hour a week). *Four hours, entire session.*

308. Teachers' course: During the third term in the

senior class of German, the course will be so modified, or supplemented, as to include a short pedagogical course for those students who expect to become teachers of this language. This will consist chiefly of elementary work in grammar and syntax, and a study of the best methods of giving instruction in the subject.

GRADUATE STUDENTS.

309. Advanced course: For those students who wish to pursue the study of German beyond the scope to which a two-year course necessarily limits them. Here, in addition to the authors studied in the lecture room, a wide and extensive reading of authors and literature is prescribed.

TEXT-BOOKS.

First Year:—Wesselhoeft's German Grammar, Carruth's German Reader.

Second Year: Schiller, Lessing, selected modern German plays, German lyrics, Bernhardt's Deutsche Litteraturgeschichte, Joynes-Meissner's German Grammar, German Composition.

MATHEMATICS.

PROFESSOR CRENSHAW.
PROFESSOR MESSICK.
ASSOCIATE PROFESSOR SHI.
INSTRUCTOR PATRICK.
INSTRUCTOR STOKES.
INSTRUCTOR DONAHUE.
ASSISTANT PITTS.

The courses of instruction offered in this department are designed to give the student that mental discipline and training in logic which will enable him to think and reason logically; as well as a thorough knowledge of the principles and formulas of pure mathematics and their practical applications in the engineering and other scientific professions.

The courses offered in the different classes in this department are as follows:

FRESHMAN CLASS.

401. Plane Trigonometry. *Five hours, first term.*

402. Advanced Algebra. *Five hours, second and third terms.*

SOPHOMORE CLASS.

403. Plane Trigonometry: *Five hours, first term.*

404. Analytic Geometry: *Five hours, second and third terms.*

(Note: Beginning with session 1915-16, the Sophomore class will study Analytic Geometry the first and second terms, and Differential Calculus the third term).

JUNIOR CLASS.

405. Calculus: *Five hours, entire year.*

(Note: Beginning with session 1916-17, the Junior class will study Calculus the first and second terms, and Differential Equations the third term).

SENIOR CLASS.

407. Calculus: *Three hours, first and second terms.*

(Note: The Senior class will not study pure Mathematics after the session of 1914-15).

GRADUATE STUDENTS.

408. Differential Equations: *Two hours, entire year.*

409. Methods of teaching mathematics: The department offers a course designed for teachers of elementary mathematics, or for those who expect to make this their profession. The elementary branches of mathematics will be reviewed and methods of teaching briefly discussed, keeping constantly in view the co-ordination of the lower branches with the higher. The course will include also a brief *resume* of the history of the elementary subjects, a critical examination of the extant text-books; and finally, an outline of a course of study in advanced mathematics to be pursued by the teacher.

410. Projective Geometry: This course, which aims to present the elements of the subject, will be offered to seniors and graduate students in architecture and engineering and to those properly equipped who wish to pursue the subject of mathematics. *Hours to be arranged, third term.*

TEXT-BOOKS.

Wentworth's Geometry, Fine's College Algebra, Wentworth's Trigonometry, Tanner and Allen's Analytic Geometry, Granville's Calculus, Johnson's Differential Equations, Cohen's Differential Equations.

PHYSICS.

PROFESSOR SOUTHALL.
INSTRUCTOR RIDDLE.

The complete course of physics extends over four years and is designed to give as far as possible an adequate and correct idea of the method of physical science and to lay the foundation for subsequent advanced work if (as must often be the case, especially in an institution such as this) the student desires to pursue the subject further or intends to engage in any of the great engineering professions of which physics is so important a basis. The lectures are illustrated by experiments; the students are required to work numerous problems and exercises.

FRESHMAN CLASS.

501. This course is very elementary. The object in view is to make the student familiar with the fundamental principles of physics. (The text-book will be announced later.) *Three hours, first and second terms.*

SOPHOMORE CLASS.

502. This is a laboratory course, and deemed especially important for students of engineering, and of great advantage to such as intend to pursue the subsequent higher work in this department. The laboratory exercises are carefully selected, being designed to illustrate the fundamental methods and principles of physics, and, although the work is necessarily more or less elementary, at the same time such accuracy and precision as the conditions admit of are insisted upon, so that the student is expected to acquire a fairly correct idea of modern experimental investigation. The exercises consist of the fundamental measurements of length, mass, density, moduluses of elasticity, pendulum experiments, etc., together with a few more advanced experiments in connection with the similar properties of liquids and gases, and the general phenomena of heat and sound. The student is required to write a careful report of such experiments, entering the results of observation in tabular form, and plotting a curve wherever practicable; also describing the object, apparatus, and method, and noting sources of errors, etc. Great stress is laid upon this requirement, and reports are not accepted unless they indicate that the student has done his best in every way. *Two hours, entire year.*

503. Elementary mechanics: Lectures, text-book, problems and exercises. (Text-book will be announced later.) *Three hours, third term.*

JUNIOR CLASS.

504. This is a more advanced course in general physics required of all candidates for a degree. The only preparation needed is a good working knowledge of mathematics through plane trigonometry. The course includes a series of illustrated lectures on the principles of dynamics, as applied to solids, liquids, gases, sound and heat, in the order named. Written exercises are required each week. (Text-book to be announced later.) *Three hours, entire session.*

SENIOR CLASS.

505. This course, although more advanced than the junior course, and occasionally employing the higher mathematics, is a continuation of the work of the previous year. It might be called a course in elementary mathematical physics, and the subjects varying from year to year, that are treated in the lectures are such branches of physics as kinematics and dynamics, thermodynamics, electricity and magnetism, geometrical and physical optics, etc. The student is encouraged to solve difficulties for himself, and to read the standard treatises and original memoirs on the various topics that come under discussion. *Two hours, first and second terms.*

506. Astronomy: A brief course of lectures in descriptive astronomy. *Two hours, third term.*

(The text-books in this class vary with the changing subjects, and will be announced by the professor each year).

507. Teachers' course: In the spring term a course will be offered for those members of the senior class who expect to teach physics. Methods of teaching the theory will be discussed and practical training will be given in the use of the laboratory for school purposes.

GRADUATE STUDENTS.

508. Physics and mechanics: This course will be designed to meet the needs of the students who take it. It will include both theoretical and experimental work in more advanced mathematical physics, or in analytical mechanics.

MILITARY SCIENCE AND TACTICS.

COL. B. S. PATRICK, *Commandant.*

Military science and tactics are required by law to be taught in this institution. The law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the school of the soldier, of the company, and of the battalion in close and extended order, in guard mounting, inspection, parades, reviews, etc.

Under section 1225, U. S. Revised Statutes, the college is provided with U. S. magazine rifle, calibre 30, model 1898, and accoutrements.

The following uniform of standard cadet gray cloth has been prescribed for dress; coat and trousers as worn for fatigue at West Point, with dark blue cadet cap. A neat and serviceable uniform can be obtained for fourteen dollars. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is divided into companies. The officers are selected for military efficiency, good conduct and scholarship. The commissioned officers will be selected from either the senior or the junior class, and promotion will depend on merit and not wholly on seniority.

A band composed of cadets furnishes appropriate music at all reviews and parades and on other special occasions.

A student who has once accepted an office can not resign it except for reasons entirely satisfactory to the president and the commandant. The resignation of an office will usually not be considered without first placing all the circumstances to the case before his parent or guardian.

Candidates for appointment or promotion may be required to stand an examination. Moral fitness, including demerits, will be considered.

Each company is officered by one captain and two first lieutenants, one second lieutenant, and a proper number of non-commissioned officers. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the president on nomination of the commandant.

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant-General of the U. S. Army, and the names of the three most distinguished in military science and tactics will be inserted in the U. S. Army Register, and published in general orders from headquarters of the army.

The theoretical course in military science and tactics is begun in the junior and continued throughout the senior year.

The following are the courses prescribed:

600. Military drill: Required of all freshmen, sophomores, and juniors not physically incapacitated to bear arms. *Three hours, entire year.*

JUNIOR CLASS.

601. Infantry drill regulations. *One hour, first and second terms.*

602. Firing regulations for small arms. *One hour, third term.*

SENIOR CLASS.

603. Security and information (Wagner): *One hour, half first term.*

604. Field service regulations: *One hour, half first term and the second term.*

605. Manual of guard duty : *One hour, third term.*

SPECIAL COURSES FOR TEACHERS.

The courses described here are practical courses in the methods of instruction and are designed especially for teachers in Alabama schools and for those students who expect to teach after leaving college. They are given under the direction of the various departments by instructors who have had extensive experience in teaching and who are familiar with the existing conditions in the schools in the state. While in a few of the courses the instruction consists mainly of the study of texts on methods and lectures and discussions on methods of teaching specific subjects, in most of them the subject matter as well as the method is given. If there is sufficient demand, any department of the college will offer courses which may be carried on without the formal attention of the professor, in which the reading work will be outlined and supplemented by conferences from time to time. The following courses are offered:

701. In English: This course is planned especially to suit the needs of those who are now teaching English in elementary or secondary schools and those who expect to become teachers of English. It will include discussions of the existing needs in Alabama schools, general instruction in methods of study and presentation of literature, and lectures on practical methods of teaching grammar and composition, together with actual work in this subject. It will also be the purpose of the course to examine various text-books available for instruction in English and to put the student in touch with such books as he will find useful in his work and in his own development. *Two hours, third term.*—PROFESSOR WANNAMAKER, PROFESSOR WEBB, PROFESSOR RUTLAND.

702. In History: For those who expect to teach history a conference is held once every two weeks. The chief purpose is to obtain a clear understanding of the practical difficulties that confront teachers of history and to suggest the best ways to meet them. The discussions deal with both American and European history. —PROFESSOR PETRIE.

703. In Latin: During the spring term a pedagogical course is given in Latin. It is designed chiefly, but not exclusively, for members of the senior class. It includes a discussion of methods of teaching forms and syntax, as well as concrete illustration of the ways to overcome difficulties in Caesar and Virgil.—PROFESSOR PETRIE.

704. In French and German: During the third term in the senior class of French and German, the courses will be so modified or supplemented, as to include a short pedagogical course for those students who expect to become teachers of these languages. This will consist chiefly of elementary work in grammar and syntax and a study of the best methods of giving instruction in these subjects. *Third term.*—PROFESSOR WIATT.

705. In Mathematics: The department of mathematics offers a course designed for teachers of elementary mathematics, or for those who expect to make this their profession. The elementary branches of mathematics will be reviewed with especial attention to those portions presenting unusual difficulties to beginners, or which deserve emphasis on account of their importance. Methods of teaching will be briefly discussed, and the course will keep constantly in view the co-ordination of

the lower branches with the higher. It will include also a brief *resume* of the history of the elementary subjects; a critical examination of the extant text-books; and finally an outline of a course of study in advanced mathematics to be pursued by the teacher. *The hours will be arranged later.*—PROFESSOR CRENSHAW.

706. In Physics: In the spring term a course will be offered for those members of the senior class who expect to teach physics. Methods of teaching the theory will be discussed and practical training will be given in the use of the laboratory for school purposes.—PROFESSOR SOUTHALL.

707. In library methods: The course offered by the library will have for its object the training of teachers in the formation, care, and use of a school library. Elementary instruction in the principles of dictionary cataloguing and of the decimal classification will be given, followed by a detailed study of reference books, together with practical problems worked out in the library. In addition there will be lectures on library organization and equipment, the routine work of a small library, and the selection and ordering of books. Hours *to be arranged.*—MISS MARTIN.

708. In Manual Training: Courses in elementary wood work and iron work are offered. These courses will be adapted as far as possible to the individual needs of those taking the courses and in addition to the shop work will include lectures and conferences on the organization of courses and the equipment of shops for manual training. *Hours to be arranged.*—PROFESSOR WILMORE.

709. In Physical Geography: In the course in general geology will be found much that is especially applicable to physical geography. It takes up a study of subterranean and surface agencies both as to their destructive and constructive processes. The results of these processes are then taken up in a study of the topography of the surface of the earth under the following heads: The geographic cycle; land sculpture; topography as determined by faults and joints; adjustment of rivers; seacoasts; mountain ranges. *Two hours, first and second terms.*—PROFESSOR BROWN.

710. In Drawing and Descriptive Geometry: A course in the methods of teaching drawing and descriptive geometry is given to those who wish to prepare for

teaching these branches. This course includes advanced work in the form of problems, supplemented by frequent conferences with the instructor, a full bibliography of works on the subjects, and an extended course in reading. Those who desire to avail themselves of an opportunity to practice the teaching of the subjects, may be permitted to attend the meetings of the larger classes in elementary work for the purpose of observing methods of teaching. Those who show sufficient preparation may be allowed to assist in tutoring delinquent students and those who enter conditioned. Special attention is given to the subject of drawing as taught in high school work. —PROFESSOR FULLAN.

711. In Chemistry: In this course, students who have had the necessary preliminary work in chemistry will be afforded the opportunity of taking laboratory practice in experimental chemistry for lecture purposes and for the purpose of the practical study of methods of handling classes in experimental laboratory work. Advanced students can also take the course in the history of chemistry, which is provided in the senior year of the course in chemistry and metallurgy. *Hours to be arranged.*—PROFESSOR ROSS.

712. In Biology (in botany and zoology): This course embraces practical and detailed work in biology, including both laboratory practice and class work in the principles of botany and zoology as well as instruction in the methods of teaching these subjects. It is especially arranged for those who expect to teach botany and zoology in the public schools, and will be supplemented by independent reading and work assigned from time to time and by conferences with the instructor. *Hours will be arranged.*—PROFESSOR CALDWELL.

713. In Agriculture: Methods of teaching agriculture. This is a course of lectures and laboratory and field exercises intended to meet the needs of those who expect to teach agriculture or nature study in the common schools and agriculture in the high schools. Special attention is given to plans for school gardens and the selection of material for illustrating the principles of agriculture, and practice will be given in conducting a number of simple demonstrations. Frequent excursions will be made to the fields.

Teachers and those who are preparing to teach are advised to take as many of the courses in agriculture as their time permits. It is especially desirable that those intending to take the teachers' course shall have previously taken *Agriculture* 203, or its equivalent. Lectures and laboratory, *one hour each, third term.*—PROFESSOR DUGGAR.

714. In physiology and hygiene: The department of physiology and veterinary medicine can give the following course of instruction to prospective Alabama teachers.

(a) Structure of human body and animals.
  (1) Study of cells, tissues and organs.
  (2) How to use the smaller animals in taking naked eye anatomy.

(b) Physiological actions of the different parts and products of the animal and the human body. This embodies:
  (1) Functional tests.
  (2) Chemico-physiological tests.
  (3) Physico-physiological tests.

(c) Hygiene, embracing instruction in personal health problems.

(d) Sanitation, including health conditions of cities, homes, public buildings, farms, barns, dairies, etc.

(e) Care of animals on the farm and in the city.—PROFESSOR CARY.

715. In horticulture and school gardening: This course embraces instruction in nature study, the use of school gardens, and elementary landscape gardening. Though the course is largely practical in its nature, much attention is given to the methods of teaching elementary horticulture, the use of texts, and experiments suitable for elementary and high school grades. *Hours to be arranged.*—PROFESSOR WALKER.

COLLEGE OF ENGINEERING AND MINES

CIVIL ENGINEERING.

PROFESSOR MITCHAM.
ASSISTANT MOORE.

SOPHOMORE YEAR.

101. Plane surveying and levelling: A short course for sophomores who are not required to take courses 102, 103, and 104. Instruction will be given in use, adjustment and care of instruments; determination of true meridian and magnetic declination; U. S. public land survey system; farm surveys by various methods; plotting and computing areas; dividing land; differential and profile levelling; terracing; drainage surveys. *Three hours lectures, second term, and two hours field practice, second and third terms.*

102. Plane surveying and levelling: A longer course for all engineering students of sophomore class. Instruction covers construction, adjustment; use and care of instruments; standardizing tapes, determination of true meridian and magnetic declination; U. S. public land survey system; methods of retracing old land lines; farm surveys by various methods; plotting and calculating areas; dividing lands; surveying and mapping existing roads and streets; laying out townsites and establishing permanent monuments for same; differential levelling; profile levelling; cross-section levelling; calculation of excavation and embankment; terracing; staking out and giving grades for sewers, ditches, and drains; staking out buildings, etc. *Three hours lectures and two hours field practice, first term.*

103. Topographic and hydrographic surveying: Required of students pursuing courses in civil or mining engineering. Instruction covers surveys made by pacing and use of hand level and pocket compass or alt-azimuth instrument; topographic surveys made with transit, chain, and level; railroad topography with hand level; triangulation; theory of stadia measurements; topographic surveys with transit and stadia; plane table surveys; topographic maps; hydrographic surveys, maps and charts. *Three hours theory and two hours practice, second term.*

104. Railroad surveying: Required of students pursu-

Civil Engineering

ing courses in civil or mining engineering. Instruction covers preliminary surveys; theory of simple, reversed and compound curves; turnouts and crossings; the railroad spiral, and calculation of excavation and embankment. *Three hours theory and two hours practice, third term.*

105. Surveying between sophomore and junior years. This course is given in the summer camp immediately after commencement. The purpose of the course is to give the student uninterrupted practice in the solution of practical problems in surveying similar to those which he will meet early in his career as an engineer; and the course is in line with the policy of the Institute to combine theory and practice in all its branches of technical instruction. The work given includes retracing land lines of the U. S. public land surveys; farm surveys by compass, deflection angle traverse, and azimuth traverse; problems in division of land; topographic survey of a given area of land; triangulation; preliminary survey of a short line of railroad; differential levelling; profile levelling. Students are required to make field notes of the work done by the party to which they are assigned, and computations, plots, maps, and profiles connected therewith. Required of all students who are candidates for a degree in civil or mining engineering. *Sixty hours a week, four weeks.*

JUNIOR YEAR.

106. Railroad surveying: A course in field and practice covering problems in location to fit given ground, spirals being used wherever good practice requires; fixing grades with reference to economy in construction and operation; approximate estimates of quantities from profiles; cross-sectioning and calculation of excavation and embankment; overhaul; borrow pits; planning and staking out bridges, trestles, and culverts. *Six hours, first term.*

107. Roads and pavements: A course of lectures and recitations covering economic principles involved in road improvement; analysis of resistance to traction; location, grades, and drainage of new roads; relocation and improvement of existing roads; construction and maintenance of earth, gravel, and macadam roads; bituminous materials in road construction; street plans of cities and towns; width and grade of streets; curbs and gut-

iers; construction of various kinds of street pavements; comparative merits of various pavements; construction of sidewalks; street drainage. *Five hours, first term.*

108. Road materials laboratory: The study and testing of various materials used in the construction of roads and pavements. The purpose of the course is to allow the student an opportunity of becoming familiar with the physical properties, relative merits, and methods of testing the various materials rather than to have him perform exhaustive research work. *Three hours, second term.*

109. Road and street improvement: A practical field and office course in making surveys, plans, and estimates for road and street improvements. *Three hours, third term.*

110. Mechanics of materials: This course is intended to acquaint the student with the physical and mathematical ideas underlying the mechanics of materials and to prepare him for his future work in theory of structures and structural design. The discussions cover conditions of equilibrium; definition of stresses and strains; modulus of elasticity; stresses beyond the elastic limit; resilience; riveted joints; shafts; tension members; columns; beams; center of gravity; moment of inertia. *Five hours, second and third terms.*

111. Graphic statics: A course of lectures and drafting room exercises covering fundamental principles of equilibrium; composition and resolution of forces; the equilibrium polygon; graphical determination of stresses in trusses and framed structures; bending moments and shears in beams; center of gravity of given sections; moment of inertia. *Three hours, second term.*

112. Structural drafting: The purpose of this course is to acquaint the student with the details of structural steel work, to train him in the neat and accurate execution of drawings, and to teach him in a practical way to solve some of the simpler problems in structural mechanics. *Five hours, entire session.*

SENIOR YEAR.

113. Theory of structures: The purpose of this course is to teach the fundamental theories underlying the design of bridges, roofs, and other framed structures of metal and timber. The discussions cover determination of outer and inner forces acting on the structure; con-

centrated live load systems; design of beams, plate girders, simple trusses, bridge trusses with secondary web systems, lateral and portal bracing, transverse bents, viaduct towers, cantilever bridges, three-hinged arches. *Five hours, first term.*

114. Structural design: This is a drafting room course in the practice of bridge and structural design, and is the complement of course 113. Complete designs are worked out for a number of structures. *Nine hours, first and third terms.*

115. Railroad engineering: The discussions cover the inception, promotion, and organization of railroad projects; organization and construction; the duties of the engineer; alignment and grades; rails and rail fastenings; cross ties; ballast and roadbed; culverts; bridges, and minor structures; turnouts; side tracks and yards; terminals; elevation of outer rail; signalling; the locomotive and its work; locomotive and grade problems; railroad expenditures; relation of operating expenses to number of trains; effect of rise and fall, distance, and curvature to train mile costs; railroad location, construction, and betterment surveys. *Three hours, first term.*

116. Theoretical hydraulics: The discussions cover fluid pressures; equilibrium of floating bodies; fundamental principles of hydro-mechanics; methods of measuring the flow of water; Pitot tube; Venturi meter; orifices; tubes; sluices; wiers; nozzles; fire hose; flow in open channels, sewers, conduits, etc; flow in pipes; dynamic action of flowing water; impulse wheels; turbines of various types; centrifugal pumps. *Five hours, second term.*

117. Practical hydraulics: This course is the complement of course 116, and its purpose is to bring the student into close touch with practical hydraulics. The work includes the determination of coefficients of orifices, tubes, and nozzles, determining loss of head in pipes and fire hose; measurement of water by wiers and meters; testing meters and pumps; gauging streams with current meter; visits of inspection to hydro-electric power plants under construction and in operation and reports on same. *Three hours, third term.*

118. Concrete and masonry construction: Discussions cover mathematical theories underlying the design of reinforced concrete beams, columns, slabs and arches; cements, limes, and mortars; methods of mixing and placing plain and reinforced concrete; classification and proper-

ties of building stones; definition and construction of various classes of stone masonry; manufacture of brick; brick work; stone and brick arches; retaining walls, piers and abutments; shallow foundations; coffer dams; crib foundations; pile foundations; pneumatic caissons; the freezing process; cylinder piers. *Three hours, second and third terms.*

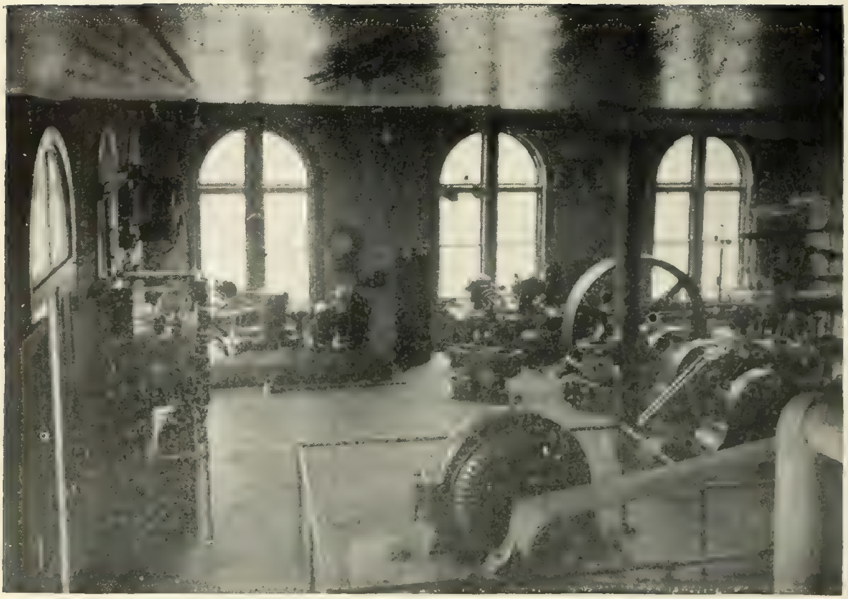
119. Sanitary engineering: The discussions cover the history of sanitary science; sanitary measures necessary for the prevention of zymotic diseases; the engineer's part in the campaign for the prevention of disease; the sources of water supply, its collection, purification, and distribution; sewerage, and sewerage design; sewage disposal; construction of sewers; pumping of sewage; sewage treatment plant; sewage farms; collection and disposal of garbage and rubbish; street cleaning. *Five hours, third term.*

120. Thesis: Each candidate for a degree in civil engineering is required to prepare a thesis upon some engineering subject which he may select. It must be the record of original investigation of some engineering subject or an original design of some engineering structure or project. The applicant for a degree shall file a written announcement of his subject with the professor of civil engineering not later than October 1st of his senior year; and the thesis shall be completed and submitted for approval not later than April 15th. During the first term the candidate shall devote not less than four hours a week to reading and collecting data for his thesis; and during the second term he shall devote not less than nine hours a week to work on his thesis. He shall submit on Monday morning of each week a written statement of the time he has devoted to thesis work during the preceding week.

GRADUATE STUDENTS.

121. Graduate engineering course: This course requires three hours a week to be devoted to recitations and five hours a week to practical work in field or drafting room, throughout the session. The subjects may be varied to fit the needs of the students taking the course, but will be chosen from the following: Reinforced concrete; bridge design; sewerage; specifications and contracts.

122. Thesis: Graduate students applying for the degree of civil engineer will be required to prepare and present a thesis, the regulations governing thesis work being the same as those prescribed for seniors.



Power House Views

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN.
PROFESSOR HILL.
INSTRUCTOR WOOTEN.

Courses of instruction offered:

JUNIOR CLASS.

201. Elementary theory of electricity and magnetism: A detailed study of the fundamental phenomena and laws of the subject. *Three hours, first term.*

202. Direct current machinery: Lectures and recitations on the principles of design, construction, installation, and operation of direct current generators and motors. This course treats in detail of the selection of machinery for given conditions, performance guarantees, acceptance tests for heating, regulation, efficiencies, etc., parallel running, troubles and remedies, and repairs. A large number of carefully selected problems are assigned for solution and every effort is made to have the course cover not only the fundamental principles but also the broader engineering problems connected with the choice and use of this class of machinery. *Three hours, second term.*

203. Central station appliances and distribution for lighting and power service by direct currents: This course treats in detail of switch boards and appliances, calculation of circuits of various kinds, arc and incandescent lighting, metering, systems of charging for service, economics of generating plants. *Three hours, third term.*

204. Elementary theory of electricity and magnetism: For non-electrical engineering students. This course is similar to course 201, though not so detailed in treatment. *Two hours, first and second terms.*

204a. The construction and operation of both direct and alternating current machines; tests for efficiency, regulation and heating; the generation and distribution of electric power. In this course, it is intended to cover the application of electricity to the operation of machinery. For non-electrical students. *Two hours, per week, third terms.*

205. Electrical measurements and tests: For students in electrical engineering and mechanical engineering. The course consists of lectures and recitations upon the measurements of current, voltage resistance, capacities,

magnetic measurements, stray power, brake tests, heat runs, and related subjects. *One hour, entire session.*

206. Laboratory work: For students in electrical engineering and mechanical engineering. The course consists of galvanometer work, resistance measurements of various kinds, magnetic measurements and various tests. *Four hours, first term.*

207. Laboratory work: For students in electrical engineering and mechanical engineering. The third term is devoted to the operation of direct current motors and dynamos, characteristics of direct current machinery, methods of adjusting, compounding, etc. *Four hours, second term.*

208. Laboratory work: For students in electrical engineering and mechanical engineering. Efficiency tests, location of troubles on machine and line, switch boards and appliances, and general experience in the operation of a direct current station, are given. *Four hours, third term.*

SENIOR CLASS.

210. Theory of alternating currents: Lectures, recitations, and problems upon the phenomena of alternating current circuits, inductances, etc. The course is introductory to the subject of alternating current machinery, and in order to take it, students must have a fair working knowledge of differential and integral calculus and vector algebra. *Five hours, first term.*

211. Alternating current machinery: Lectures and recitations upon alternating current generators, calculation of alternator voltage regulation by various methods, parallel running, transformers, induction motors, single phase commutator motors, synchronous motors, rotaries, etc.; harmonic analysis of wave forms, the expression of the same in Fourier series and calculation of the current produced in various circuits.

The course is somewhat advanced and in order to take it satisfactorily students must have a good knowledge of the mathematical theory of alternating currents. *Five hours, second term.*

212. Transmission lines: Lectures and recitations upon line inductance and capacity, the application of hyperbolic functions to the calculation of the regulation of long transmission lines, effect of harmonics in E. M. F. waves, surges, etc. Stresses in conductors, line construction and related topics. *Five hours, third term.*

213. Laboratory work: Operation of alternating current machinery, determination of data for calculation of alternator regulation, direct determination of regulation, efficiency tests, transformer connections, transformer testing for efficiency and regulation, induction motor testing, circle diagram. Brake tests, single phase induction motors, synchronous motors, V-curves, rotaries, synchronizing, etc. The work during the third term consists chiefly in the determination of data for the student's thesis. *Four hours, entire session.*

214. Electric railway engineering: A detailed study of the subject of street and interurban electric railway service covering train resistance, grades, curves, line and track, car and power plant equipment, both direct and alternating currents, sub-station, single phase equipment, and related topics.

The course consists of recitations and lectures with constant reference to current numbers of various technical journals. *Two hours per week, one term.*

215. Telephone engineering: History and development of telephone types, designs of telephone parts, sub-station equipment, magneto and common battery switch boards, exchange equipment, telephone power plants, over head and under ground circuits, protectors, coin collectors and meters, party lines, private branch exchanges, first and intercommunicating systems, trunking, and toll boards. *Two hours, first and second terms.*

216. Telephone laboratory: Details of telephone constructions, association of parts, assembly of switchboard parts, storage batteries, tests for location of faults in cables and lines, capacity and insulation tests, details of common battery and magneto switch boards, trunking schemes, etc. *Two hours, first and second terms.*

217. Electrical engineering: For senior mechanical engineering students. Direct current motors and generators, street railways, circuits, alternating currents, and alternating current machinery. This course is less detailed than the courses for electrical engineering students, but aims to cover the field in a more generalized manner. *Three hours, first term.*

218. Laboratory work: For seniors in mechanical engineering. This course is given in connection with course 217, and gives practice in the operation and testing of electrical machinery of various kinds. *Four hours, first term.*

219. Contracts and specifications: For seniors in the

courses of electrical engineering and mechanical engineering. Lectures and recitations upon engineering specifications and the elements of the laws of contracts. Considerable time is devoted to exercises in writing specifications covering machinery and engineering projects. These specifications are read to the class and the students are required to offer criticism on each set. *Two hours, third term.*

220. Power plant: For students taking the special course in applied electricity. The purpose is to familiarize the student with the operation of engines, pumps, generators, motors, switchboard appliances and boilers. All students in this course are expected to work under the power house engineer. *Four hours, entire session.*

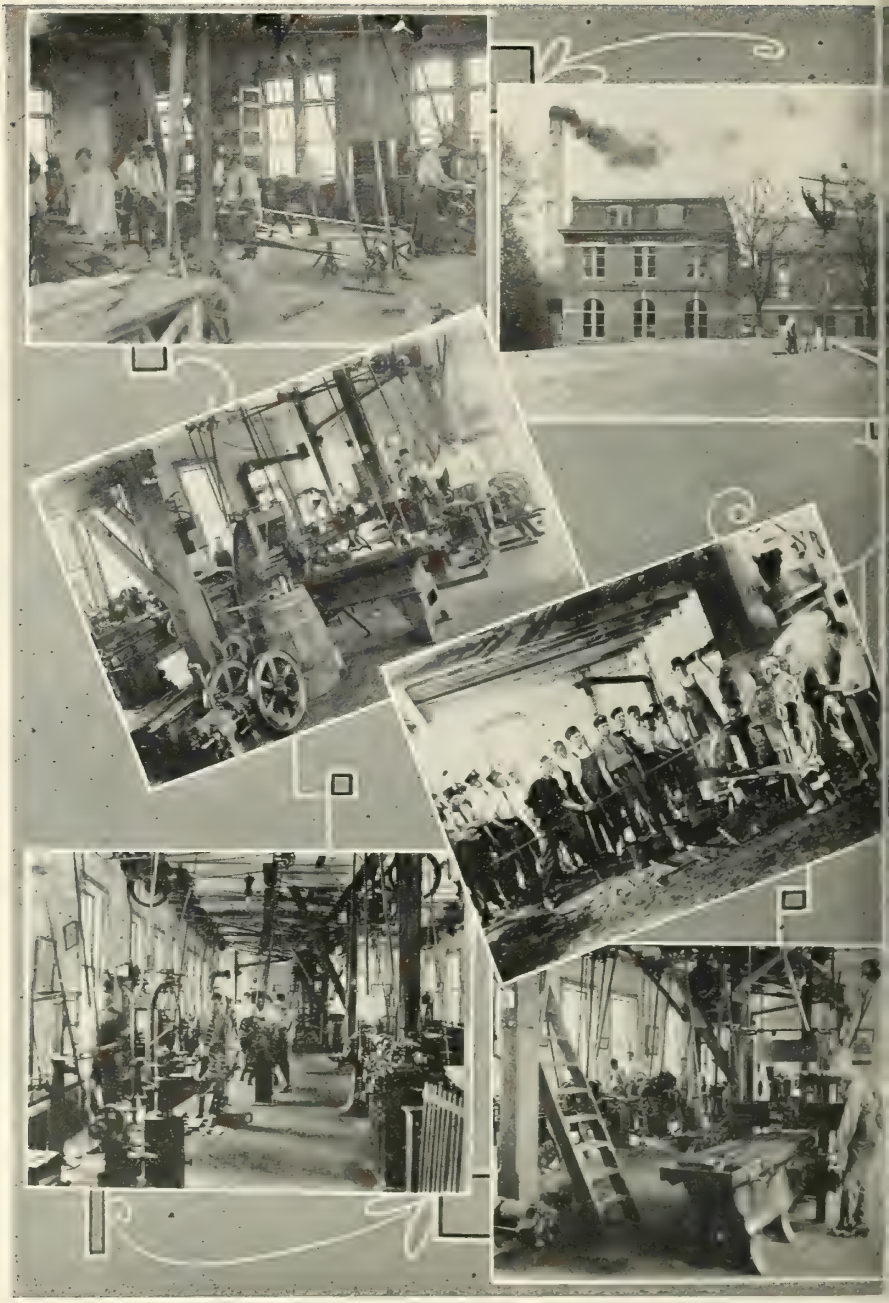
ONE-YEAR COURSE IN WIRELESS TELEGRAPHY.

221. In response to a considerable demand it has been decided to offer a special course in wireless telegraphy. The practice work in this subject will be under the charge of a licensed wireless operator. Every effort will be made to offer to students opportunities to become familiar with the setting up, installation, and testing of wireless apparatus, as well as becoming expert in sending and receiving.

Wireless messages are constantly being picked up with the wireless station, these messages coming from ships at sea, and from various wireless stations along the Atlantic Coast.

The requirements for entrance to this course will be similar to those for entrance upon the two-year course in Applied Electricity.

The course of study is the same as that of the first year in the two-year course in Applied Electricity, with the exception that four hours of wireless telegraph study and practice will be substituted for four hours power house work.



Shop Views

MECHANICAL ENGINEERING.

PROFESSOR WILMORE.
INSTRUCTOR STOKES.
INSTRUCTOR MITCHELL.
INSTRUCTOR HIXON.
ASSISTANT HIXON.
ASSISTANT HEARD.
LABORATORY ASSISTANT BENSON.
LABORATORY ASSISTANT FARR.

The following courses are offered in this department:

FRESHMAN CLASS.

351. Shop work—carpentry: The lessons include instruction in the nature and use of tools; instruction and practice in shop drawing; elementary work with the plane saw, chisel; the construction of different kinds of joints, timber splices, cross joints, mortise and tenon, mitre and frame work, and dove tail work, comprising the different joints used in cabinet work, and examples of framing roof trusses. Students who have had previous experience in the use of tools or who show special proficiency, are given work of an advanced character. *Six hours, one term.*

352. Shop work—wood turning: The instruction includes the nature and use of the lathe and tools, and the lessons comprise plain, straight turning, caliper work to different diameter and lengths, simple and compound curves, screw plates and chuck work, hollow and spherical turning. *Six hours, one term.*

353. Shop work—pattern making: The course includes work in whole and split patterns in wood for solid and cored castings, and core boxes for producing the necessary cores. The characteristics of the different kinds of timber used for patterns are studied, and attention is called to allowances necessary for shrinkage and draft. The patterns are intended to be used by the students in their subsequent work in the foundry. *Six hours, one term.*

SOPHOMORE CLASS.

312. Applied mechanics: Required of students in engineering courses. The fundamental laws of mechanical science are studied while special attention is given to the practical application of these principles to engineering work. *Three hours, second and third terms.*

361. Shop work—forging: A text book is used from which is learned something of the characteristics of the metals and the best methods of working them. The lessons are so arranged as to make the student familiar with the handling of the tools and the successive steps in working metals by hand. Exercises in drawing, upsetting and bending, cutting, punching, and welding by various methods, are given, together with a course in steel forging, including hardening, tempering, and case hardening. *Four hours, first term.*

362. Shop work—foundry: Required of all students except those taking agriculture. The work for the most part consists of small articles, such as light machine parts and the stock pieces used for the exercise work in the machine shop. A sufficient variety is introduced for the student to acquire a good general knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand and two part flasks, but some core work and more complicated work is introduced to illustrate the processes, as well as to furnish the castings for the advanced work in the machine shop. Instruction is given in operating the cupola, and from time to time lectures and recitations are held on the metallurgy and working of the metals used in the industrial arts. *Four hours, second and third terms.*

JUNIOR CLASS.

321. Practical mechanics: Required of students who take machine shop work. The instruction consists of recitations and lectures on general machine shop work. The construction, use, and limitations of the various machine tools, the forms of cutting tools and methods of grinding them, and the form and use of jigs and gauges, are studied, together with instruction in machine management, and time and cost keeping. *One hour, entire session.*

322. Strength of materials: Required of students in the courses of mechanical engineering and electrical engineering. The properties and characteristics of the materials of engineering construction are studied, and the development of the methods of calculating their strength under different conditions of stress is explained. Many problems involving the strength of beams, girders, columns, and shafts are worked out. *Three hours, second and third terms.*

371. Shop work: Required of students in the courses of mechanical engineering and electrical engineering. This work is divided into two parts:

(a) A course of chipping and filing. The lessons comprise work on cast iron and wrought iron, and consist in chipping to line on flat and curved surfaces, key seating, filing, and finishing to line, surface filing, slotting, pin and screw filing, and surface finishing with scraper.

(b) A course in machine work. The materials worked on include cast iron, wrought iron, steel and brass. Exercises are given in turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling in the lathe and drill press, reaming, boring, screw cutting in lathe and with taps and dies. Practice is given in working the planer, shaper, and milling machine. In the last part of the year, some work in tool making is given, such as making taps, reamers, and milling cutters. Some sort of construction or repair work for the department is always on the shop floor and students who are well advanced in their work have opportunity to gain additional practice and experience by assisting with this. *Six hours, entire session.*

374. Shop work: Required of students in the course of mining engineering and elective for juniors in the course of civil engineering. The work includes courses (a) and (b) as described in course 309 just preceding, except the amount of work required is less in proportion to the time consumed.

All shop work is done from blue prints and blackboard sketches. For the preliminary exercise work, special instruction sheets are prepared and given out to each student with the stock for the exercises. These sheets explain in detail each step in the process of producing the exercise, and are intended to supplement the individual instruction of the instructor. In the construction work it is the purpose to select some simple machine and build two or more of them on the interchangeable system. Jigs and templates are built to accomplish this result as far as possible. A system of time keeping is in force in the shop. At the end of the week each student makes out his time card, describing the work he has done during the week, and giving the number of hours spent on each job. *Four hours, entire session.*

377. Summer course: Required of juniors in the courses of mechanical engineering and electrical engineering. The work will consist in the adjustment and

calibration of instruments used in engineering work, and the adjustment and operation of gas, gasoline, and steam engines. Tests will be made to determine the efficiency of mechanisms, such as hoists, jack screws, gearing, belts, and other transmission devices, together with some work in valve setting and power measurements of steam engine. Complete and accurate written reports of each experiment are required. *Twenty hours per week for two weeks, beginning the week following commencement.*

SENIOR CLASS.

331. Power plant engineering: Required of students in the courses of mechanical engineering and electrical engineering. The work of the course consists of a study of the practical applications of steam machinery. It is believed that a thorough knowledge of the apparatus in actual practical use is the best preparation a student can have for the study of the theory, and to that end, the different types of engines, boilers, pumps, condensers,, and other auxiliary apparatus are taken up and studied in detail, and the advantages of each are discussed. Extensive files of manufacturers' catalogues are kept, and the technical papers and magazines in the library are freely used in order to keep in touch with the latest and best practice in engineering work. *Five hours, first term.*

332. Thermodynamics: Required of students in the courses of mechanical engineering and electrical engineering. The subject is first studied from the ideal standpoint, and later the applications are made to hot air engines, gas, and gasoline engines, and steam engines, and also to air compressors and refrigerating machines. The temperature-entrophy method of analysis is used in explaining heat transfers, and in general, graphical methods are used in preference to analytical ones when they can be made to serve the purpose equally well. In this course will be given instruction in indicator practice and the interpretation and working up of indicator diagrams from steam engines, gas engines, air compressors, and refrigerating machines. *Five hours, second and third terms.*

334. Heating and ventilating: The different methods of heating and ventilating buildings are treated. A study is made of the relative efficiency of hot water, steam, and warm air as mediums for heating different kinds of buildings, and special attention is given to the design and operations of healthful heating systems for residences. *Two hours, first term.*

335. Gas engines: This is a descriptive course, and gives attention to the construction and operations of gas engines and gas producers as used in modern power plants. The rapid development of the gas engine in recent years warrants a more extended treatment of this subject than can be given in the usual course of thermodynamics, and the above is offered as supplementary thereto. The subject will be presented by text-book, lectures, manufacturers' catalogues and drawings, and student reports on current articles of interest. *Two hours, second term.*

336. Refrigeration: Required of students in the course in mechanical engineering. The theory of the refrigeration process is studied together with its applications to commercial plants. The advantages of the various mediums, as ammonia, carbon dioxide and others are discussed, as well as methods of insulation and plant arrangement. *Three hours, third term.*

381. Laboratory: Required of students in mechanical engineering and electrical engineering. This work includes fuel analysis and heat determination, flue gas analysis and the study of combustion, oil and lubricant testing, and valve setting and indicator card analysis. *Four hours, first term.*

382. Laboratory: Required of students in mechanical engineering and civil engineering and optional in electrical engineering. The course includes work in testing the strength of materials, as iron, steel, wood, and cement in tension, compression, and transverse loading, and the calibration of weirs, nozzles, and meters, a study of the flow of water in pipes, and the testing of hydraulic motors and pumps. *Four hours, second term.*

383. Laboratory: Required of students in mechanical engineering and electrical engineering. The work includes tests of engines, boilers, pumps, gas and gasoline engines, complete power plants, and when opportunity offers, tests of commercial power plants. *Four hours, third term.*

GRADUATE STUDENTS.

391. Laboratory: This course is arranged to suit the work being carried by the students, and the hours are adjusted to suit their available time.

341. Steam turbines: The theory, design, and structural details of the different types of modern steam turbines are studied, and complete designs are worked out. *Three hours, first term.*

342. Power plant design and economics: The economics of power plant design, the relation of the different elements of a power plant to each other, and the conditions of maximum efficiency are studied. Plants are designed to give the highest efficiency under specified conditions, and actual plants are studied to discover, if possible, sources of additional economy in operation. *Three hours, third term.*

343. Works management: Methods of cost keeping. systems of organizing and paying labor, depreciation of plant, accounting and business organization are studied. Many problems are solved, including the lay out of buildings and machinery for manufacturing plants. *Three hours, third term.*

384. Thesis: Every applicant for a degree is required to prepare a thesis and hand it in not later than May 1st, preceding the commencement at which he expects to graduate. This thesis may consist of a design, a study of some engineering problem involving a series of tests, or a study involving the collection and analysis of data and material on some engineering subject, with a statement of definite conclusions derived therefrom.

3S4. Manual training for teachers: Courses in elementary wood work and iron work are offered. These courses will be adapted as far as possible to the individual needs of those taking the courses, and in addition to the shop work will include lectures and conferences on the organization of courses and the equipment of shops for manual training. *Hours to be arranged.*

SPECIAL STUDENTS.

Special students who have the necessary preparation may be admitted to any of the classes in this department. For the benefit of students who, for any reason, are not able to remain in college to complete the full course, but who wish some training in drawing and shop practice, a special two-year course has been arranged. This course is particularly recommended to young men who contemplate entering the mechanical trades either preceding or following the apprenticeship period. In many cases this work has been accepted as equivalent to a part of the apprenticeship period and the time of the latter shortened thereby. The drawing and mathematics are invaluable tools in any of the trades, and work in the different shops enables the apprentice to become familiar with the principles of the trades allied to his own.

The following courses are offered to students in the special Two-Year Course in Applied Electricity, and to any other students who may desire to take them.

3S1. Steam engines and boilers: An elementary descriptive course in which attention is called to the different types of engines and boilers, methods of setting, valve gears and valve setting, piping systems and auxiliary apparatus for power plants. *Three hours, first term.*

3S2. Gas engines: A descriptive course in gas, gasoline, and oil engines; different cycles, methods of ignition, troubles and remedies. *Three hours, second term.*

3S3. Transmission of power: Shafting, pulleys, bearings, belting, gearing, aligning of shafting, calculation of pulley and gear sizes, power of belts, lubrication and lubricating systems. *Third term, three hours.*

For teachers who desire to secure preparation in the subjects pertaining to manual training, special shop courses are arranged. These will include such of the regular courses as are adapted to the requirements of the class, and suitable supplementary courses in wood and metal work. Lectures on the arrangement of courses and the equipment for instruction in manual training are offered.

MINING ENGINEERING AND GEOLOGY.

PROFESSOR BROWN.

ASSISTANT KELLUM.

401. Mine surveying: All general surveying as given by the civil engineering department previous to the junior year is required for this course. The work covers general surveying methods as applied to conditions prevailing at mining properties, both underground and at the surface. The student is required to work out practical problems that he will be likely to meet in actual practice. *Five hours, first half of first term.*

Text-book: Durham's Mine Surveying.

402. Coal mining: For those who have taken course 404 and its prerequisites. This course includes the following:

Examination of coal properties; drifts, slopes and shafts; methods of working; plans of mines; coal-cutting machinery; trackwork; haulage; mine ventilation; coal washing; coking in beehive ovens; by-product coking. *Five hours from first mid-term to end of session.*

403. Junior drafting: The course includes free-hand lettering, mapping, detailed drawings to scale of various structures relating to mines, design of mine cars, design of ventilating fans. *Five hours, entire session.*

404. Summer course: The time will be divided between a study of gold mining and milling at Alexander City; coal mining, washing, and coking at Birmingham, and iron ore mining at Birmingham. Surveys and reports will be required. *Four weeks immediately following commencement between junior and senior years.*

SENIOR CLASS.

411. Mining: Modes of occurrence and origin of the various ores and economically valuable mineral deposits. Prospecting and examination of mineral properties, including boring by different methods. Methods of opening up mineral deposits, breaking ground, supporting excavations, developing and working coal and metalliferous deposits, haulage, hoisting, drainage, ventilation, lighting and provisions for ascent and descent. The last term is devoted to the design of mine structures, such as head frames (timber and steel), coal tipples, mine buildings. *Three hours, entire session.*

412. Drafting: Map work consisting of the plotting of notes taken on summer trip between junior and senior years; drafting accompanying design of mine structures; original work in connection with thesis. *Four hours, entire session.*

413. Laboratory course: For seniors in mining engineering and chemistry and metallurgy. The work includes crushing, sampling, concentration, stampmilling, amalgamation and cyaniding. *Three hours, entire session.*

Text-books: Coal and Metal Miner's Pocket Book, and International Text Books.

421. Graduate course: This course is offered to those who desire to pursue the subjects related to mining beyond the scope to which the two years' course limits them. The work will be arranged to meet the requirements of those desiring to take it.

431. Crystallography: For students in the courses in civil engineering, mining engineering, and chemistry and metallurgy. A thorough study is made of the crystal systems with the aid of a full set of crystal models and

natural crystals. Special emphasis is laid upon the more practical features which will be of service in further mineralogical work. *Four hours, first mid-term.*

Text-book. Bayley's Elementary Crystallography.

432. Mineralogy: For juniors in the courses of civil engineering, mining engineering, and chemistry and metallurgy. The course consists of a thorough study of a large number of minerals from the standpoint of their physical characteristics. A good type collection of minerals is kept in the laboratory for comparison. An effort is made to have the student become familiar with economically important ores and non-metallic minerals, and the common rock-forming minerals so that he can identify them at sight by the application of a few simple tests. *Four hours, one and one-half terms.*

Text-book: Butler's Handbook of Minerals.

433. Lithology: For those who have satisfactorily completed course 432. This deals with the combinations of minerals in the make-up of rocks, and aims to bring out structure, texture, crystallization and mineralogical composition sufficiently to enable the student to recognize the commoner rocks in the sedimentary, igneous and amorphic classes. *Four hours, third term.*

Text-book: Kemp's Handbook of Rocks.

434. Agricultural geology: For juniors in agriculture. This course deals with the structure, composition and other characteristics of the different classes of rocks; the general principles involved in rock-weathering; special cases of rock-weathering; transportation and redeposition of rock-debris; classification and character of resulting soils. *Two hours, first and second terms.*

Text-books: Merrill's Rocks, Rock-weathering and Soils.

435. General geology: See course 441.

SENIOR CLASS.

441. General geology: For juniors in the courses of mining engineering, and chemistry and metallurgy, and for seniors in the courses of civil engineering and general course. The course covers dynamic geology, structural geology, geomorphology, and historical geology in the order named. The lectures and recitations are supplemented by laboratory instruction and geological excursions. *Two hours, entire session.*

Text-book: Chamberlin and Salisbury's College Geology.

442. Economic geology, non-metallic minerals: For seniors in the courses in mining engineering, and chemistry and metallurgy. The course is presented by lectures and recitations and includes the study of modes of occurrence, distribution, origin and uses of coal, petroleum, limestone, salines, gypsums, fertilizers, abrasives, minor non-metallic minerals, and mineral waters. *Two hours, first term.*

Text-book: Riess' Economic Geology of the United States. (Revised).

443. Economic geology, metallic minerals: For students who have taken course 408. The work includes a study of the ores of iron, copper, lead, zinc, gold, silver, silver-lead, aluminum, manganese, mercury, and the minor metals. *Two hours, third term.*

Text-book: Reiss' Economic Geology of the United States. (Revised).

444. Methods of teaching physical geography: Especially adapted to the secondary schools of the State. In the course in general geology will be found much that is especially applicable to physical geography. It takes up a study of subterranean and surface agencies both as to their destructive and constructive processes. The results of these processes are then taken up in a study of the topography of the surface of the earth and under the following heads: The geographic cycle; land sculpture; topography as determined by faults and joints; adjustment of rivers; sea coasts; mountain ranges. Students desiring extra work in this subject may arrange for a three-hour course. *Two hours a week, first and second terms.*

ARCHITECTURE.

PROFESSOR HUDNUT.

ASSISTANT LOVELACE.

The department of Architecture was established in June, 1907, to comply with an increasing demand for instruction in this subject and to encourage students to take up a profession which hitherto could be pursued only after an expensive term of study in the North

The course as planned leads to the degree of B. S. in architecture after a period of four years' study, of which the first is devoted to those preliminary courses required of freshmen in all departments, while the other three are devoted partly to those technical courses which form the foundation of an architect's training and partly to certain cultural subjects which, though less obviously necessary, are nevertheless essential.

The curriculum recognizes the fact that only a part of an architect's training can be obtained in class room and laboratories; a large part must be obtained by experience in the offices of practicing architects. The immediate aim of the school is not therefore to give the student a complete knowledge of all the materials and processes of building nor yet to give him complete mastery of all the subtleties of architectural drawing and design. The aim is rather to give him that wide sympathy with intellectual culture which ought to distinguish the successful architect, and at the same time to give him a clear understanding of the more fundamental technical principles of his profession. In addition the student will acquire as great a facility in drawing as can reasonably be expected after three years of daily practice.

The following courses are required of all students in this department:

SOPHOMORE CLASS.

501. Architectural drawing: A study of architectural elements (walls, doors, arches, columns, etc.), and of elementary architectural drawing. The orders are drawn and rendered and the student is given some practice in simple composition. Texts: Ware's American Vignola, Parts I and II. *Six hours, entire session.*

511. Freehand drawing: Elementary exercises in delineation and chiaroscuro from plates, casts, and natural objects. *Two hours, entire session.*

521. Building materials and specifications: An elementary course in the preparation of working drawings, and the writing of specifications. Carpenter's work (framing, windows and doors, inside finish, hardware, etc., and mason's work, ordinary foundations, limes and cements, building stones, laths and plastering, etc). Text-books: Martin's "Details," Kidder's "Building Construction," Vols. I and II. *Three hours, entire session.*

541. Architectural shades and shadows: A study of ordinary shades and shadows in relation to architectural features (cornices, columns, domes, etc.). Practice in drawing. Texts: Curtis' "Graphics," McGoodwin's "Shades and Shadows." *Three hours, third term.*

JUNIOR CLASS.

502. Architectural drawing and design: A continuation of course 501. Problems are assigned in the planning and composition of buildings, beginning with simple structures and advancing to more complex ones. Drawing-room criticisms and occasional lectures. *Six hours, entire session.*

512. Freehand drawing: A continuation of course 511. Sketches from the cast in pencil and charcoal and in wash. Rendering in pen and ink. *Two hours, entire session.*

532. History of architecture: Technical and historical development of the architectural styles. Lectures (illustrated with the stereopticon) and quizzes. Essays on specified topics, illustrated with sketches and tracings. The first year's course includes the history of architecture in Egypt, Greece and Rome. Text: Simpson's "A History of Architectural Development," Vol I.

542. Perspective: Elementary exercises in freehand and mechanical perspective. Text: Curtis' "Graphics," Lawrence and Everett's "Perspective Drawing."

SENIOR CLASS.

503. Architectural drawing and design: A continuation of course 502. Written programs are given the student and he is allowed six weeks for their presentation in rendered drawings; and in addition there are included sketch problems occupying eight hours or less. Drawing-room criticisms and occasional lectures; assigned readings in Gaudet and other authorities. *Eight hours, first and second terms.*

503a. A thesis: Two months of careful work on a single building or group of buildings.

513. Freehand drawing: A continuation of course 512. Practice in water-color drawing from objects and from nature. *Two hours, first and second terms.*

533. History of architecture: A continuation of course 532. Lectures and quizzes; occasional essays illustrated with sketches. The Byzantine, Romanesque, Gothic, and Renaissance styles are studied. Text: Simpson's "A History of Architectural Development," Vols. II and III.

MECHANICAL DRAWING AND MACHINE DESIGN

PROFESSOR FULLAN.
INSTRUCTOR THOMAS.
ASSISTANT SPARKES.

The following courses are offered in this department:

FRESHMAN CLASS

601. Mechanical drawing: This course is not of a technical nature, is intended to be of general educational value to the student, and is required of students in all courses. The object of the course is to provide the student with the applications of geometry to drawing, and to train the hand and eye, with the mind. The work is principally that of linear drawing, including the most useful of geometric constructions, arranged in progressive order. Free-hand lettering is given early in the course by means of lectures, and practice work in it is continued throughout the year. The one-plane projections—axonometric and oblique which enable the student to represent an object on a single plane, are illustrated by means of suitable models, from which the students make their drawings. In this course accuracy, neatness and the use and care of the instruments are given special attention. *Three hours, entire session.*

SOPHOMORE CLASS

602. Descriptive geometry: Required of all students preparing for engineering and architectural courses. The work is given by lectures, written recitations, and drafting room instruction. In this course, theory and practice are combined with the purpose of training the student in the graphical expression of ideas. The instruction includes problems relating to the points, straight line, and plane; tangents and normals; to cylindrical, conical, and warped surfaces, to sections, intersections, and developments; to shades, shadows, and perspective, and is intended to develop in the mind of the student a clear concept of magnitudes in space. The lectures and written recitations are to impart principles and to permit the instructor to meet the entire class, and, with diagrams and models, supplement the work of the text. The drawing, two hours per week, consists of plates of problems, which are selected from the text-book and other sources. *Four hours, entire session.*

603. Mechanical drawing: Like course 601, of the freshman class, this course is non-technical and is of general educational nature. The work is given concurrently with that of course 602, in descriptive geometry, and the applications of the methods of analysis given in descriptive geometry are stressed in each case where they may be applied. The subjects of the drawing plates, which are principally geometric, are required to be completely represented by the student, to enable one to read clearly what is intended to be shown. The work includes isometric projection, orthographic projection, sections, intersections, and developments, machine drawing, and freehand lettering.

As a check on the work in sections, intersections, and developments, and to more fully illustrate the subject, models from drawing paper of the surfaces are made by the student from the developments. This course is a prerequisite to work in the junior class in civil, electrical, mechanical, and mining engineering. *Three hours, entire session.*

JUNIOR CLASS.

604. Kinematics of machinery: Required in the courses of mechanical engineering and electrical engineering. Under this head machines are analyzed and their elementary combinations of mechanisms are studied. The communication of motion by gear wheels, belts, cams, screws, and link work, and the different ways of obtaining definite velocity ratios, and definite changes of velocity in machine parts, parallel motions, and quick-return motions, as well as the designing of trains of mechanisms for various purposes, together with the theoretical form of teeth for gear wheels to transmit motion of these trains, are investigated under this subject. *Three hours, first term.*

605. Graphic statics of mechanism: Required in course of mechanical engineering. The lectures provide a brief course in graphic statics, graphical statics of mechanism, and in the design of structures, including roof trusses for factory buildings, crane frames, girders, and water-tank towers. The stresses in machines and structures are investigated by graphical methods, which are carefully checked in the beginning, by analytical proofs. This course includes the solution by graphical methods of such problems, before which analytical methods are comparatively impotent, as those which involve the friction losses in machines, and of the determination of the effi-

ciency of mechanisms. The graphical method is also applied to dynamics by problems in the balancing of engine crankshafts working under specified conditions. The use of manufacturers' handbooks and drafting-room practice are given special attention. *One hour, entire session.*

606. Machine design: Required in the courses of electrical engineering and mechanical engineering. Instruction is given in the design of fastenings and machine parts, and in the general methods of arranging views. This course includes the design of cams, gear tooth outlines, quick-return motions, and link-work combinations, which supplements course 604, in kinematics. Scale drawings of simple machines are made from dimensioned sketches, which each student makes for himself from an actual machine or model. Tracings and blue-prints are made from these drawings. All the instruction is intended to familiarize the students with modern drafting room methods. *Four hours, entire session.*

607. Machine design—lectures: Required in the courses of mechanical engineering and electrical engineering. These lectures are intended to cover the general instructions to the students, such as the selection of materials for different machine parts, the rules for proportion of parts to secure strength, symmetry, and cheapness of manufacture, and the best methods of making, recording and preserving the calculations incidental to the design of a complete machine. Much valuable engineering data of current nature in the form of notes are given as a supplement to the text-book. Illustrated lantern lectures on subjects related to the course are given at intervals during the year. *One hour, entire session.*

608. Machine design—drawing: Required in the course in mechanical engineering. This is a continuation of the junior course in machine design. Original problems involving the design of complete machines to work under specified conditions are assigned and the student develops the idea in the form of sketches. These are submitted to the instructor for criticism and are afterwards embodied in complete detail and assembly drawings. The calculations of each design are written up neatly and filed with the drawings. Special attention is given to the strength of the parts, to the harmonious and symmetrical appearance of the complete machine, and to the details as regards practical manufacture. *Six hours, entire session.*

609. Machine design—drawing: Required in the course in electrical engineering. The work given and the methods pursued are similar to those described in course 608, just preceding, but the amount of work required is reduced in proportion to the amount of time given to the subject. *Three hours, entire session.*

GRADUATE STUDENTS.

610. The work offered during the post-graduate year is an extension of that of the senior year. More of the theory of the subject is taught, more intricate machines are involved, and problems are given involving the design of a series of machines for manufacturing some specific article. The problems arising in the design of a line of machines of different sizes are also taken up, including the applications of graphical methods and the use of factors of enlargement and reduction. Special attention is given to the effect of current practice on the proportion of machine parts. Suitable text and reference books are used.

611. Methods of teaching drawing and descriptive geometry: A course in the methods of teaching drawing and descriptive geometry is given to those who wish to prepare for teaching these branches. This course includes advanced work in shape of problems, supplemented by frequent conferences with the instructor, a full bibliography of works on the subjects, and an extended course in reading.

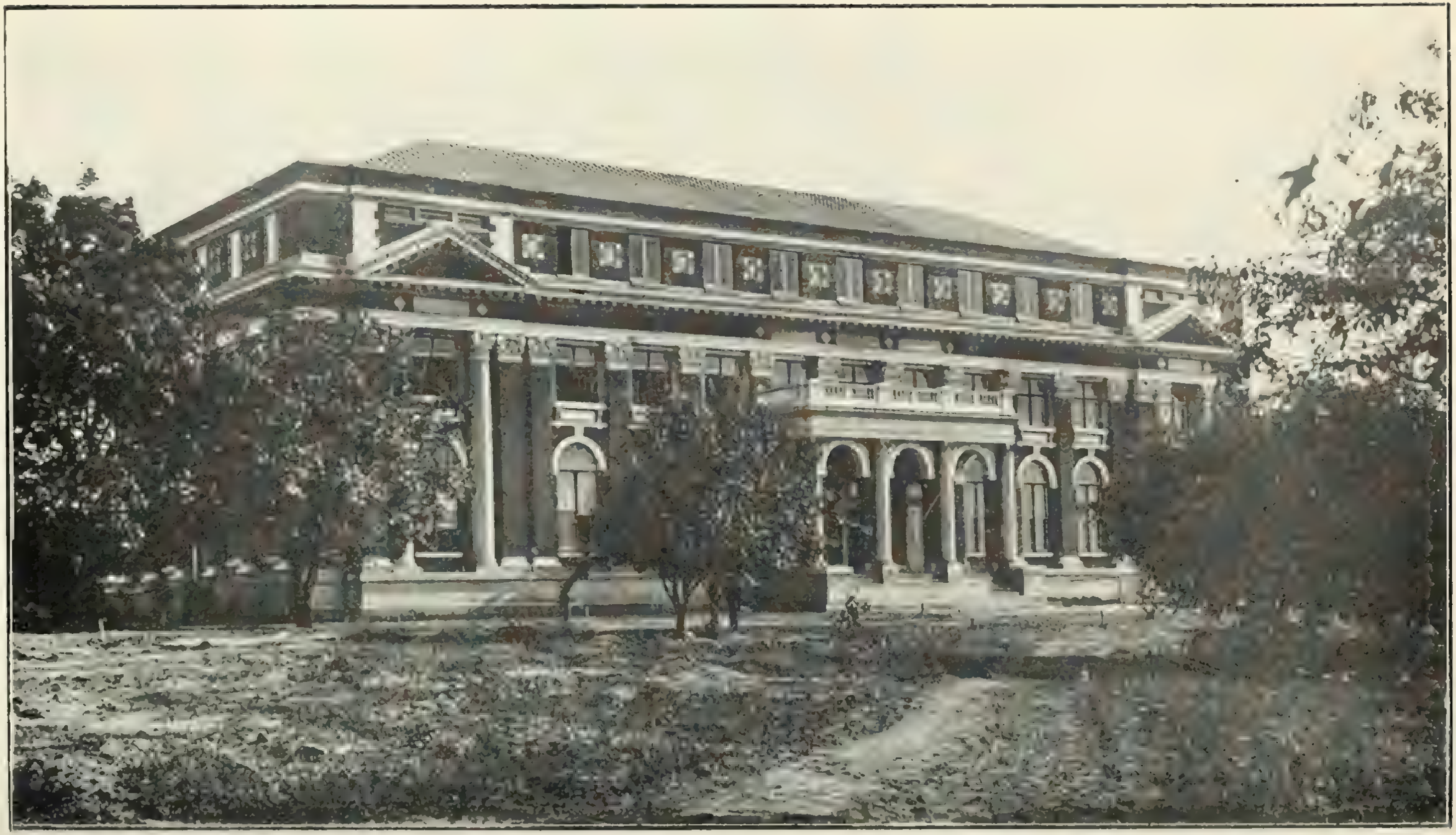
Those who desire to avail themselves of an opportunity to practice the teaching of the subjects, may be permitted to attend the meetings of the large classes in elementary work for the purpose of observing methods of teaching.

Those who show sufficient preparation may be allowed to assist in tutoring delinquent students and those who enter conditioned.

Special attention is given to the subject of drawing as taught in high school work.

TEXT-BOOKS.

Thomson's Educational and Industrial Drawing Series, Cross' Mechanical Drawing, Jamieson's Isometric Drawing, Phillips and Millar's Essentials of Descriptive Geometry, French's Engineering Drawing, Schwamb and Merrill's Elements of Mechanism, Spooner's Machine Design, Smith and Marx's Machine Design, Spangler's Graphics.



Comer Agricultural Hall

COLLEGE OF AGRICULTURAL SCIENCES

CHEMISTRY.

Professor Ross
PROFESSOR HARE.
ASSOCIATE PROFESSOR BRAGG.
INSTRUCTOR POWELL.
INSTRUCTOR MARSH.
INSTRUCTOR ADLER.
ASSISTANT WATSON.
ASSISTANT CALLOWAY.

Instruction in this department embraces the following courses of lectures: systematic laboratory work is given in connection with each course for the practice of chemical analysis and chemical research:

FRESHMAN CLASS.

101. Course in general chemistry: This consists of a series of lectures including a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties, and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form. *Four hours, entire session.*

REFERENCE BOOKS.

Remsen's College Chemistry, Newth, Holleman, Roscoe and Schorlemmer, Chemical Journals.

SOPHOMORE CLASS.

103 (b). Organic chemistry: This course, though somewhat more condensed, is similar to 103 (a), with the exception that the latter portion of the course is devoted to a special study of the fats, carbohydrates and proteins with reference to their functions in the life processes of plants and animals. *Two hours throughout the first and second terms.*

105. Agricultural chemistry: This course consists of lectures on chemistry in its application to agriculture, and includes a thorough discussion of the origin, composition, and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist. *Five hours, throughout the third term.*

REFERENCE BOOKS.

Snyder's Soils and Fertilizers, Snyder's Chemistry of Plant and Animal Life, Johnson's How Crops Grow, and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Storer's Agriculture in Relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

JUNIOR CLASS.

102. Industrial chemistry: Lectures, including discussion in detail of the process and chemical principles involved in the most important applications of chemistry in the arts and manufactures to the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams. *Three hours, first and second terms; four hours, third term.*

REFERENCE BOOKS.

Thorp's Industrial Chemistry, Wagner's Chemical Technology; Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Sadtler's Industrial Organic Chemistry, Blount and Bloxam's Chemistry for Engineers and Manufacturers.

103 (a). Course in organic chemistry: Instruction in this subject embraces lectures and recitations upon the leading facts and principles of the chemistry of the carbon compounds, and includes a study of the methods of preparation of the more important compounds, their properties, and their structural and stereo-chemical relations. *Three hours, first and second terms; two hours, third term.*

TEXT AND REFERENCE BOOKS.

Remsen's Organic Chemistry, Richter's Organic Chemistry, Gatterman's Practical Methods of Organic Chemistry.

SENIOR CLASS.

104. Course in Metallurgy: This consists of lectures and recitations upon the more important metals, such as iron and steel, copper, lead, tin, silver, gold, mercury, zinc, etc. It includes a discussion of the physical and chemical properties of the metals and their alloys, the ores and their treatment, and the processes by which the metals are obtained from the ores, with chemical reactions involved. *Three hours, second and third terms.*

104b. Metallurgy: An advanced course in iron and steel. Lectures and recitations upon the special methods of manufacturing iron and its several alloys, or steels. Required of seniors in mining engineering, chemical engineering, chemistry and metallurgy, and mechanical engineering. *Three hours, third term.*

106. Engineering chemistry: A course given during the senior year, especial attention being devoted to the study of the construction and equipment of the chemical plants devoted to the manufacture of the more important chemical products. Excursions to various chemical and metallurgical plants during the course of the year will aid in familiarizing the student with the practical details of the operation of the leading industries. *Two hours, second and third terms.*

107. Course in theoretical chemistry: The more modern phases of chemical theory are given special attention. *Two hours, first term.*

108. Course in physical chemistry: Lectures and recitations. *Two hours, entire session.*

109. Methods of teaching chemistry in the secondary schools: In this course, students who have had the necessary preliminary work in chemistry will be afforded the opportunity of taking laboratory practice in experimental chemistry for lecture purposes and for the purpose of the practical study of methods of handling classes in experimental laboratory work. Advanced students can also take the course in the history of chemistry which is provided in the senior year of the course of chemistry and metallurgy. *Hours to be arranged.*

111. Course in advanced inorganic chemistry. *Two hours per week, entire session.*

LABORATORIES.

110. Courses of practical work in the laboratory are carried on in connection with all courses of lectures.

The laboratories, which are open from 9 A. M. to 5 P. M. during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation in qualitative and quantitative analysis, and in the methods of prosecuting chemical research. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles and the common re-agents and apparatus used in the qualitative and quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from his contingent fee.

SOPHOMORE CLASS.

(a) All students in the courses in agriculture, chemistry and metallurgy, chemical engineering, and mining engineering are required to take practical laboratory work. Students in the course in pharmacy upon application, may be allowed to take this work.

The work of this course embraces the preparation of a number of non-metallic elements and some of the more important inorganic compounds, the identification of metals by means of the blowpipe, and the qualitative separation and detection of the bases and acids.

JUNIOR CLASS.

110 (b). A course in quantitative analysis, embracing gravimetric and volumetric analysis and including the analysis of limestones, iron ores, etc. *Six hours, entire session.*

SENIOR CLASS.

(c) A course in quantitative analysis, including analysis of fertilizers, soils, coals, ores, iron and steel, sugars and sugar products, feed stuffs, mineral waters, fluxes, slags, cinders, furnace gases, etc. The nature of the

Interior Chemical Laboratory

work is varied somewhat to suit the individual object of the student. *Six hours, entire session.*

(d) The laboratory course provided for students in the course in mining engineering embraces work in quantitative analysis, including assaying. In the latter portion of the course, especial attention is given to metallurgical analysis and the fire assay of ores of gold, silver, and other important metals. *Eight hours, entire session.*

(e) In the courses in pharmacy and veterinary science, instruction in urine analysis and in toxicology and toxical analysis is given during the last term.

(f) In the junior year, a laboratory course in organic chemistry is provided for students in the course in chemical engineering throughout the entire year, and for students in the course in chemistry and metallurgy during the third term. *Four hours, entire session.*

The short course includes systematic laboratory work in organic preparations, while the longer course embraces work in organic analysis, as well as in preparations.

112. In addition to the laboratory work above described it is designed to give a short course of laboratory work in industrial chemistry, in which the student will apply upon a small scale the principles involved in the processes of some of the more important chemical industries.

Students completing the above courses are afforded ample facilities for advanced work along special lines.

AGRICULTURE.

PROFESSOR DUGGAR.

ASSOCIATE PROFESSOR FUNCHESS.

The regular agricultural course extends through four years and is intended to prepare those who complete it to become successful farmers, farm superintendents, and agricultural scientists in the various divisions of agricultural work in the U. S. Department of Agriculture and the numerous agricultural colleges and experimental stations. The studies in the regular agricultural course are so arranged that a student may obtain a thorough education while acquiring the technical training necessary to the most successful management of farming operations and of agricultural investigation or teaching. No foreign language is required for graduation in this course, but those who expect to engage in scientific work of the U. S. Department of Agriculture or of the agricultural colleges and experiment stations, have the opportunity to study Latin, French, and German, or any one or two of these.

For the benefit of those who are unable to spend four years at college and who desire to prepare for the management of a farm, a short two-year course in agriculture is provided. In this the student devotes his entire time to those studies having a direct bearing on his future occupation.

The following courses of instruction are offered:

FRESHMAN CLASS.

201. Introduction to agriculture: This is a short course of lectures, dealing with some of the simplest phases of agriculture. *Two hours, half third term.*

SOPHOMORE CLASS.

202. Principles of agriculture: Lectures, and recitations dealing with the soil and the conditions necessary to growth of crop plants. Methods of preparing and cultivating the soil are considered. *Two hours, second term.*

203. The small grains: Lectures, recitations, and field practice on wheat, oats, rye and barley. These plants are treated both as grain crops and as forage plants. *Two hours lectures, two hours laboratory, third term.*

JUNIOR CLASS.

204. Corn: Lectures, recitations, and field practice on the cultivation, judging and improvement of corn. The student assists in harvesting certain experiments, becomes acquainted with a number of the best varieties, learns to select the best ears and the best plants, and notes the results of experiments in improving or breeding corn. *Two hours lectures, two hours laboratory, first term.*

205. Leguminous forage plants and soil improvement: Lectures, recitations, and field practice on this most important group of forage plants, including cowpeas, soybeans, alfalfa, the clovers, vetches, etc. These plants are treated both with reference to their use as forage plants and as a means of improving the soil. *Two hours lectures, two hours laboratory, third term.*

SENIOR CLASS.

206 Cotton: Lectures, recitations, and field practice in identifying and comparing a large number of varieties growing on the experiment station farm; judging indi-

vidual cotton plants, and lectures on the cultivation, fertilization, and improvement of cotton. The collection of varieties growing on experiment station farm usually numbers between fifty and one hundred varieties, and all of these are available for students' use. *Two hours lectures, two hours laboratory, first term.*

207. Cotton classing: This course of laboratory work consists of practice in classing the commercial grades of cotton by comparing great numbers of samples procured from the offices of cotton buyers with a nearly complete set of type samples owned by this department. A part of this practice will be under the supervision of experienced cotton buyers. *Two hours lectures, two hours laboratory, second term.*

208. Farm management: A course of lectures and practice dealing largely with rotation of crops, cost of producing different crops, systems of farming, selection of a farm, and plans for the best use of the farm or soil in which each student is most interested. This course is intended to give the student an opportunity to bring to bear on practical problems the information acquired from preceding courses of instruction in agriculture and related subjects. *Two hours lectures, two hours laboratory, third term.*

209. Investigation as a basis for a thesis: After a month spent in special reading under the direction of the professor of agriculture with a view to the selection of a subject for a thesis, the student will perform some agricultural experiment in crop production, soil treatment, or in testing farm machinery. Suitable facilities for such thesis work are provided in the fields and agricultural laboratories. In addition to conducting an original experiment the student will review the literature of agriculture to ascertain the results of similar or related experiments. It is expected that the results of some of these experiments will be worthy of publication. *Entire session.*

211. Soils and soils laboratory: Recitations intended to acquaint the student with the physical properties of soils, with the principal soils of Alabama, and especially those of the region from which each student comes. Instruction in this course will be given with a view to fitting a student to engage in the soil survey work of the U. S. Department of Agriculture, as well as to prepare him for the rational management of the soil of the farm. *Five hours, entire session.*

212. Special crops: A course of lectures dealing with sugar cane, tobacco, rice, broom-corn, and other southern crops not treated in other courses. *Two hours, second term.*

213. Methods of teaching agriculture: This is a course of lectures and laboratory and field exercises intended to meet the needs of those who expect to teach agriculture or nature study in the common schools and agriculture in the high schools. Special attention is given to the selection of material for illustrating the principles of agriculture, and practice will be given in conducting a number of simple demonstrations. Frequent excursions are made in the fields. *Two hours, third term.*

214. Farm machinery: This is a laboratory course in which the student is made familiar with the construction and operation of various classes of farm machinery, including plows, cultivators, planters, grain drills, mowing machines, etc. Required of students taking Group "A". *Two hours, second term.*

215. Field operation of farm machinery: Instruction in the field operation of farm machinery is offered during the first and third terms, as an elective course to a limited number of seniors, pursuing the studies of Group "A". Meetings during these terms are by special appointment with the instructor in charge, and credit is given according to the time devoted to the subject. *Hours by appointment.*

Post graduate courses in crop production, agricultural experimentation and teaching, and farm management are offered. The exact nature of the subject will depend upon the special requirements of the student.

Students taking a four-year course in agriculture receive instruction in the various branches of animal husbandry and horticulture, as well as in the natural sciences bearing on agriculture.

BOTANY.

PROFESSOR CALDWELL.
ASSISTANT PROFESSOR MASSEY.

The courses offered by the Department of Botany are designed to meet the needs of three differing groups of students: those desiring to secure some general acquaintance with the elementary facts and principles of a biological science as a necessary part of a cultural education;

those desiring a thorough and detailed presentation of certain aspects of the subject as a prerequisite to entrance upon the study of medicine or of some phase of applied botany such as horticulture or agronomy; those seeking the fullest possible collegiate training in the subject as a preparation for teaching or for advanced work in the subject. For information as to laboratory equipment, see page 17.

SOPHOMORE CLASS.

301. General botany: This course is planned to meet the needs of all three classes of students just named. It is designed to furnish a broad general introduction to the fundamental principles of a biological science, supplying the foundation upon which subsequent courses are built while at the same time giving to the non-specialist student a good acquaintance with those biological principles which should form a part of his equipment for life. The course is not rigidly morphological, but attempts to supply an introduction to the evolutionary history and the fundamental physiological processes of organisms, employing plants as illustrative material. The first half of the year is devoted to the general morphology of the flowering plants. The topics upon which especial stress is laid throughout the course are vascular anatomy, the histological elements, recognition by chemical and microchemical methods of the commoner stored food-substances, and the principles of classification. Secondary attention will be given to elementary physiological facts in so far as these are necessary to comprehension of anatomical structure, but the chief end of the course is to convey a knowledge of the general anatomy and histology of Phanerogams. The second half of the year is devoted to the general morphology of selected representatives of the Cryptogams. The evolutionary relationships of the great plant groups will be outlined in the lectures and illustrated by the study of selected types in the laboratory. Especial stress will be laid upon the life-histories and biological relationships of those forms which are of greatest economic importance, hence a considerable portion of the time will be given to the fungi. *Two hours lectures and four hours laboratory, entire session.*

JUNIOR CLASS.

302. General bacteriology: This course is designed to supply to students contemplating specialization in animal

industry or in some phase of applied botany as horticulture, forestry, or agronomy, such an introduction to the principles of bacteriology as may furnish a basis for study of the special problems to be encountered in these lines of work. After a brief introductory discussion of the general morphology and physiology of the bacteria, the biological relations of the specialized groups will be taken up. The bacteriology of fermentation and putrefaction, the nitrogen-fixing and sulfur bacteria, the application of bacterially-produced processes in the industries, and the bacterial diseases of plants will be dealt with in such detail as time permits. The forms pathogenic for man and for animals will not be considered except in an incidental way, as course 108 of the Department of Veterinary Medicine and Surgery furnishes instruction covering these forms. *Two hours lectures, four hours laboratory, first term.*

303. Plant physiology: The subject matter of this course falls naturally into two parts, which are designated as *a* and *b*.

303a. Plant physics: This course deals primarily with the physical relations of the plant and with the physical forces concerned in plant processes. The subjects covered will be: The plant cell as an osmotic apparatus, the physical principles concerned in the absorption of water, the physics of transfer of solutes through protoplasmic membranes; the physiology of the root system, physical features of the soil in their relations to extent and distribution of roots; the water-content of the soil in relation to plants, physical factors of the soil in relation to water-holding power, physiologically significant quantities of water in soils, plant forces concerned in removal of water from the soil; mineral nutrients of the soil in relation to plants, historical development of the humus and the mineral nutrient theories of soil fertility, methods of study of the soil solution and significance of the results; absorption by soils, its bearings upon studies of the mineral requirements of plants; the theory of antagonism, the soil solution as a balanced solution; acid and alkaline soils, causes and practical methods of dealing with these conditions; toxic plant by-products in relation to soil infertility, biological basis for the toxin theory, its present status. The problems of energy exchange in plants; the physics of carbon dioxide absorption, the limiting factors upon photosynthesis, the energy expended in photosynthesis. Transpiration as a physical exchange with the surroundings, internal and external regulation of transpiration, thermal emissivity. The physics of movements of water in plants. *Two hours lectures, four hours laboratory, second term.*

303b. Plant chemics: This course considers the chemical phenomena occurring in plants, and will cover the following topics: The chief food substances of plants; the classification, composition and inter-relationships of the carbohydrates and the glucosides; the composition, relationships and biological importance of the plant fats, synthesis of fats in the plant; the physical properties, chemical composition, and products of hydrolysis of proteins, synthesis and transformations of proteins in plants; distinctive characters and classification of enzymes; the process and products of photosynthesis, conditions affecting rate of photosynthesis, the elaboration, translocation and storage of the products of photosynthesis. Respiration, oxidations for energy release, aerobic and anaerobic respiration; the mechanics of respiration and fermentation, the processes and the products. A brief consideration of the effect of external factors on growth and re-production. Variation and heredity. *Three hours lectures, six hours laboratory, third term.*

SENIOR CLASS.

304. Plant pathology: The lectures of the first half of the course will deal with the morphology, distinguishing characters, and methods of identification of those orders of fungi which are concerned in the production of economically important plant diseases. The relations of parasite to host will be studied through the employment of a few examples of each of the categories of plant disease—parasitism immediately destructive to tissues and life of host; symbosis terminated by destruction of the host at the reproductive period; invasions which do not involve destruction of living tissues—to the end that the student may acquire some degree of ability to make diagnoses of plant diseases. Habit studies in the field will be followed, so far as possible, by cultural studies in the laboratory, employing representatives of all the more important pathogenic orders. Each student will be required to collect and classify a considerable number of pathogenic fungi. The second half will deal with those diseases of farm, garden, and truck crops which are of most interest to agriculture and horticulture in the state. The lectures will consist for the most part of a review and

discussion of the more important literature, with especial reference to prevention and control. The laboratory work of this portion of the course is designed to give the student an acquaintance with pathological technique and with field methods through the contribution of field studies with cultural and morphological studies of assigned organisms in the laboratory. These problems may form the basis for thesis work or for investigation which may be continued through the year. *Two hours lectures, four hours laboratory, first and second terms.*

305. Plant histology: This course covers a rather broader field than the title would imply, as its purpose is to furnish to students planning to become teachers or advanced students of botany, such familiarity with the collection, preservation, and preparation of the materials ordinarily used in introductory botany as will enable the student to collect and prepare materials for study or to do intelligent and effective teaching. The technique of the more widely used methods of preserving, sectioning, and staining will be taught, and the student will be directed in the collection and preparation of a representative teaching collection, including permanent microscopic preparations of representative forms ranging from the lower Algae through the flowering plants. Such materials become the property of the student, who will pay actual costs of re-agents, glassware, and breakage. The lectures will give consideration not only to general histological technique, but also to the choice and methods of presentation of illustrative material in elementary courses in the subject. *Two hours lectures, four hours laboratory, second term.*

306. Taxonomic botany: This course is intended to meet the needs of students desiring to acquire some acquaintance with the flora of the region. The work demands some such knowledge of the general morphology of the flowering plants as is supplied by course 301 or its equivalent. The student will be instructed in the use of keys and manuals, and the lectures will deal with the classificatory characters of the more important plant families. The laboratory work will be to a considerable extent adapted to the especial needs of the student, so that those who desire to pay particular attention to special groups, as an adjunct to work in horticulture or agronomy, will find an opportunity to do so. *Two hours lectures, four hours laboratory or field, third term.*

307. Physiological chemistry of plants: This course

will deal with the chemical recognition and quantitative estimation of the principal groups of food materials—carbohydrates, fats, and proteins—found in plants in very much more extended fashion than is possible in Course 303b, of which this course is an extension and continuation. While the materials used will be mainly those derived from plants, the student will study representatives of the protein sub-groups found only in the animal body as well as those characteristic of plants. The course is designed to furnish an introduction to the methods and the technique of physiological chemistry as applied to quantitative studies in plant physiology. Students who have the necessary training in organic chemistry may enter the course, and the work of course 303b may be carried on simultaneously with this. *Two hours lectures, four hours laboratory, first term.*

GRADUATE COURSE.

The department offers to properly prepared students opportunity for advanced work in botany, particularly in plant physiology and pathology. Students planning to do graduate work should consult with the head of the department as early in the course as possible, preferably at the beginning of the junior year, in order that proper choice of the electives may be made. The general requirements for graduate work in the department are: the satisfactory completion of the undergraduate courses in botany, together with the required courses in organic and agricultural chemistry, a course in physiological chemistry (Pharmacy 408f), courses in plant breeding and forestry (Horticulture 609 and 610), and a fair reading knowledge of German and French. By special arrangement with the department head, a student may begin graduate work without having fully met these requirements, with the understanding that they are to be fully met prior to serious entrance upon his work in the department and in addition to the work in botany required for the Master's degree.

DEPARTMENT OF PHARMACY.

ACTING PROFESSOR BLAKE.

ASSISTANT STODGHILL.

ASSISTANT ANDERS.

ASSISTANT MOLYNEUX.

The pharmacy department of this institution is a member in good standing of the American Conference of Pharmaceutical Faculties.

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than 250 drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, origin, habitat, constituents, medicinal action and dose.

JUNIOR CLASS.

401 (a). Pharmacy: Metrology; specific gravity; heat and applications of heat; fundamental operations of pharmacy; apparatus used in pharmaceutical processes; pharmaceutical arithmetic. *Three hours, entire session.*

(b). Pharmaceutical laboratory: Preparation of official and non-official galenicals, including the following classes of preparations: waters, spirits, liquors, mucilages, pills, elixirs, oleates, tinctures, etc. *Two hours lectures, six hours labortaory, second and third terms.*

402. Pharmacognosy: The study of crude drugs; lectures, recitations, and practical work in identification. *Four hours, entire session.*

406. Pharmaceutical chemistry: A study of the official salts, official title, chemical formula, reactions, description, physical identification, dosage, etc. *Two hours, second and third terms.*

SENIOR CLASS.

403 (a). Pharmaceutical technique and manufacturing pharmacy: Official and non-official galenical and chemical preparations; a thorough study of the U. S. P. and N. F. class work. *Three hours, entire session.*

(b). Manufacture of more difficult galenicals and U.

Interior Pharmaceutical Laboratory

S. P. chemical preparations; pharmaceutical testing; drug assay; compounding of fifty prescriptions. *Fifteen hours, entire session.*

404. Pharmacognosy: The study of crude drugs. This course is a continuation of course 402. *Three hours, first term.*

405. Prescription reading and incompatabilities: Lectures and recitations. *Three hours, second and third terms.*

407. Pharmacology: Materia medica and therapeutics. Lectures and recitations. *Three hours, second and third terms.*

408. The work of the third year for the pharmaceutical chemist degree is elected from the following courses:

(a). An advanced course in the manufacture of galenicals and organic and inorganic chemicals used in medicine.

(b). A course in the testing of drugs and medicinal chemicals for impurities by pharmacopoeial methods.

(c) A course in pharmaceutical assaying, including the assay of alkaloidal drugs, glucosidal drugs, resinous drugs, the valuation of fixed and volatile oils, pepsin, diatase, etc.

(d). A course in water analysis.

(e). A course in milk and butter analysis.

(f). A course in physiological chemistry.

(g). A course in organic preparations.

(h). An advanced course in toxicological analysis.

(i). The presentation of a satisfactory thesis.

Any one who completes the work of the three-year special course in such a manner as to prove himself a competent analyst will be granted the degree of Pharmaceutical Chemist.

TEXT AND REFERENCE BOOKS.

Arny's Principles of Pharmacy, Steven's Pharmacy and Dispensing, Kraemer's Botany and Pharmacognosy, Caspari's Treatise on Pharmacy, Sayre's Organic Materia Medica and Pharmacognosy, Culbreth's Materia Medica and Pharmacognosy, Scoville's The Art of Compounding, Beal's Prescription Practice, Dorland's Pocket Medical Dictionary, Ruddiman's Incompatabilities in Prescriptions, O'Connor's Commercial Pharmacy, Lyon's Pharmaceutical Assaying, United States Pharmacopoeia, United States Dispensatory, National Dispensatory, National

Standard Dispensatory, King's American Dispensatory, Prescott's Organic Analysis, Allen's Commercial Organic Analysis, Pharmaceutical Journals, Reports of American Pharmaceutical Association.

HORTICULTURE.

PROFESSOR WALKER.
ASSISTANT PROFESSOR PRICE.

Students taking horticulture as a major devote the first two years of the regular four-year course to fundamental work of general nature. During the junior and senior years they are given opportunity to specialize. Instruction consists of lectures, recitations, and practical exercises in the laboratory and field. The aim is to make the course thorough—a grounding in the principles and science upon which the best in practical methods is based in the arrangement, establishment, and handling of fruit, vegetable, and ornamental plantings, as sources of profit and pleasure.

Numerous avenues are open to the student who thoroughly qualifies himself for engaging in profitable commercial lines in orcharding, nursery, landscape gardening, truck growing, floriculture, the improvement and development of lands. There is an increasing demand for men competent to act as superintendents of large orchards and development projects. Positions are open also to well-equipped men as teachers, county horticultural advisers, and as investigators in the experiment stations in the several states, and in the United States Department of Agriculture. But aside from such considerations, a knowledge of the main facts of horticulture is of value to every citizen who is interested in home-building and community improvement.

JUNIOR CLASS.

601. Principles of plant culture: This includes the study of germination, propagation, environment, transplanting, etc.; also methods of preparing and sowing seed beds. *Recitations, two hours, first term.*

Text-books: Principles of Plant Culture (Goff), The Nursery Book (Bailey).

601 (a). Plant propagation: Studies including seed testing, propagation of different plants, pruning, etc. Students are required to submit illustrated notes. *Laboratory and field, four hours, first term.*

602. Principles of fruit growing: A study of the more important fruits of the United States with especial reference to their cultivation and fertilization. Details of marketing southern fruits are studied. *Recitations and lectures, one hour, laboratory two hours, second term.*

Text and reference books: Principles of Fruit Growing (Bailey), Popular Fruit Growing (Green), Lessons in Fruit Growing (Goff), Citrus Fruits (Hume), American Fruit Culturist (Thomas).

603. Vegetable gardening: Studies of the principal truck and garden crops with notes as to the origin, classification and economic importance; methods of planting, fertilizing, harvesting, storing and marketing these crops. *Recitations and lectures two hours, labortaory two hours, second term.*

Text and reference books: Vegetable Gardening (Bailey), Up-To-Date Truck Growing in South (Davis), Vegetable Gardening (Vilmorin), Southern Gardener's Manual (Newman), Vegetable Gardening (Watts).

603 (a). Vegetable gardening: A continuation of course 603 with a special emphasis upon the commercial side of truck growing. *Recitations and lectures, two hours; laboratory, two hours, third term.*

604. Orchard technique: A continuation of course 602 with especial reference to orchard management, such as spraying and pruning, and cultivation. *One hour lectures, two hours laboratory, third term.*

References: Pruning Book, Horticulturists' Rule Book (Bailey).

SENIOR CLASS.

605. Pomology: Varietal studies of fruits; their origin and classification. Exercises in scoring and describing fruits, pecans, etc. A study of fruit production for the home market, commercial market and canning. *Recitations and lectures, two hours; laboratory two hours, first term.*

Text and reference books: Systematic Pomology (Waugh), Fruit Harvesting, Storing and Marketing (Waugh), The American Fruit Culturist (Thomas).

606. Landscape gardening: An introduction to the general subject of landscape design. The trees, shrubs, vines, perennials and annuals adapted for Southern gardening are studied. Individual problems are presented for the embellishment of the home and school grounds and plans for public squares and parks are studied. *Lectures, three hours; laboratory, two hours, third term.*

Text: Landscape Gardening (Waugh). References: Modern Civic Art (Robinson), The Landscape Beautiful (Waugh), and other authors.

607. Canning: Study of the different methods of canning, with reference to handling the by-products of the orchard and garden. *Lectures, one hour; laboratory, two hours, first term.*

608. Floriculture and greenhouse construction: An elementary course in floriculture with special reference to the growing of the commoner cutflowers and decorative plants. *Laboratory, four hours, second term.*

609. Forestry: A study of the forest conditions of Alabama, the care of woodlots and the uses of the different Southern woods. Methods of preservation are also studied. *Recitations and lectures, two hours; laboratory and field exercises, two hours, second term.*

Text and reference books: First Book of Forestry (Roth), Practical Arboriculture (Brown), Primer of Forestry (U. S. Dept. of Agriculture), Principles of Handling Woodlands (Graves), Economics of Forestry (Fernon), Principles of American Forestry (Green), Shade trees in Towns and Cities (Solotaroff).

610. Plant breeding: A study of the improvement of fruit and vegetables; the theories and laws of plant breeding and their relation to horticultural production. *Lectures and recitations, two hours; laboratory, four hours, second term.*

Text and reference books: Principles of Plant Breeding (Bailey), Plant Breeding (Davenport), The Mutation Theory: Species and Varieties (Devries).

611. Thesis: Students who expect to take major work in horticulture should select thesis subject not later than October 1st.

ENTOMOLOGY.

PROFESSOR HINDS.
INSTRUCTOR BUCK.

In accordance with the catalogue requirements the work in Entomology is taken by all senior students electing an agricultural group of courses, and by the special two-year agricultural students during their second year. In addition to this senior work the subject is open to post-graduate students, who have completed the senior course satisfactorily, as an elective course leading to the degree of Master of Science. The senior work is given during the fall and spring terms only, while the postgraduate work continues during the college year. In general the instruction is given by lecture courses supplemented by collateral reading as assigned and with appropriate laboratory and field exercises.

The senior courses are designed to familiarize the students who anticipate engaging in agricultural work with the most important general facts of entomology as an educational science and with its importance as a subject having wide economic application. So far as possible in the brief time available, they are made familiar with some of the most common insect pests, and with general methods of insect control. Particular emphasis is given to the importance of insect species in their effects upon health of domestic animals and of man especially. A foundation is laid during this year for postgraduate study which may fit men to fill some of the many attractive openings in this field which are quite rapidly multiplying in the South.

Excellent accommodations for the department are now provided on the first floor of Comer Hall. The combined lecture and laboratory room provides accommodations for forty or more men. In connection with the range of greenhouses there is also a large workroom for experimental and demonstrational work with insecticides and an insectary, 16 x 40 feet, within which the study of insect problems may be conducted at any time under controllable conditions.

A text-book is required to supplement the lectures in this subject, and reference publications are at all times available to the student. The lectures are also supplemented by appropriate laboratory work, field exercises, the insect collection, photographs, etc., belonging to the department.

701. Structure and development of insects: The general relation of insects to other animals, showing their origin, distinguishing characteristics and the principal structures upon which they are classified, are here considered. A general study is made of the structure and physiology of insects relating to fundamental principles in their life, habits, and reproduction. The most important points in the collection, mounting and preservation of insect specimens are also studied.

702. Ecology of insects: Under this heading are considered some of the most important and interesting of

entomological subjects, among which are the general relation of insects to the health and welfare of mankind through the transmission of preventable diseases and the production of articles having a large commercial value. Protective devices of insects and their control through exceedingly complicated but important natural factors are among the subjects considered.

703. Important insect pests: As full study as the limited time permits is made of the pests of greater economic importance in the household, the orchard, garden, and greenhouse, the enemies of field crops, stored products, etc.

704. Methods in insect control: The principles of insecticide preparation and application are explained and illustrated. This work is supplemented by an exhibit of the principal insecticide materials. Practice in the preparation of the most commonly used materials is given to emphasize proper and desirable methods. The best types of spraying apparatus are shown and tested, and the student is familiarized with many of the special points in practical work. The importance of the improved methods of agricultural practice is shown and the logical basis of their effectiveness is explained.

705. Zoology: A general course in zoology is offered for sophomore students in agriculture. It includes a brief discussion of the relation of animals to plants and minerals, the nature of cells, the functions involved in life processes and of the classification and distribution of animals. The different animal groups are studied, beginning with the single celled animals, and leading gradually to the most complex forms. The characteristics distinctive of each group are shown and an illustrative study is made of one or more typical representatives of the principal subdivisions in these groups.

Herrick's Text-book of Zoology is used, supplemented by lecture notes, and the work illustrated by microscopic mounts of protozoa, both fresh and stained, microscopic mounts showing cell structure of various tissues, alcoholic specimens, dried specimens, charts and models. *Three hours, third term.*

Judging Cattle

ANIMAL HUSBANDRY.

PROFESSOR TEMPLETON.
ASSISTANT PROFESSOR GIRTON.
ASSISTANT GISSENDANNER.

Instruction in this department is given in the class room, in the laboratories, and upon the Animal Husbandry farm with the live stock. While lectures are given on judging animals, the instruction does not stop with the lectures; the students are taken to the barn and feed lots where the animals are placed before them and each student is required to make a written report concerning the animals. Class-room work in dairy instruction is supplemented, strengthened, and made practical by requiring each student to work in the dairy laboratory where butter is made, where the Babcock test is used, where the lactic acid in cream is determined, etc. In the senior year, trips are made to cities, state and county fairs, and farms, to study live stock judging and management. The livestock provided by the college for the students' use in studying breeds and judging consists of pure-bred herds of Jersey and Hereford cattle; Duroc-Jersey, Berkshire, and Poland-China swine. Light horses and mules are available for class work.

The department now has the complete herd books of practically all the leading breeds of live stock in America. By the use of these the student is enabled to inform himself in regard to all pedigrees and to study the different scales of points which the breeders have adopted to represent the highest types of the various breeds. All class room instruction is given by means of text-books and lectures. Many of the lectures are illustrated by the use of a baloptican.

The courses in this department may be grouped under five main heads:

(1) Judging of live stock, (2) breeding of live stock, (3) feeding of live stock, (4) management of live stock, (5) dairying.

The student is given an opportunity to specialize in animal husbandry throughout the junior and senior years. The courses are as follows:

FRESHMAN CLASS.

801. Breeds of live stock: The object is to study the origin, history of development, the characteristics of each

one of the leading breeds of livestock, and to discuss special adaptability of each breed to southern conditions. The lecture work is supplemented, as far as possible, by representative animals of the breed under discussion. *Lectures, two hours, latter half of third term.*

SOPHOMORE CLASS.

802. Judging beef cattle: The object of this course is to make the student familiar with the various classes and grades of cattle recognized by the leading stock markets and to familiarize him with the leading beef breeds. Instruction is given by lectures, the use of the score card, and by comparative judging. *Laboratory, two hours, first term.*

803. Judging dairy cattle: The student is familiarized with the dairy types and breeds, and is given judging instruction by the employment of the same methods as used in beef cattle judging (802). *Laboratory, two hours, second term.*

JUNIOR CLASS.

804. Dairying: The study of the secretion, character, composition, and production of milk, is made; proper methods of handling milk and cream for consumption, pasteurizing, sterilizing. The students are given thorough work in using the Babcock test and the lactometer, and the lactic acid test, together with the ordinary tests for the purity of milk and its adulterants. They are also drilled on all the phases of butter-making and standardizing milk and cream. Familiarity with the construction, care, and operation of the leading makes of cream separators, and other dairy equipment, is required. *Lectures two hours; laboratory, four hours, first term.*

805. Principles of feeding: The processes and requirements of the animal's body are first considered, as to the digestion and utilization of food, and the conditions affecting them. Then the common feeding stuffs are considered and a study is made of their value considered chemically and physiologically, and with reference to the composition and fertilizing constituents. Work is given in compounding rations for the various kinds of live stock. *Lectures, two hours, second and third terms.*

806. Swine judging: Considerable time is given to the study of the market classes of grades and the leading breeds of lard and bacon types of hogs adapted to southern conditions. The lecture work is followed by the stu-

dents using the score card and doing comparative judging. *Laboratory, four hours, second term.*

807. Sheep judging: The student is instructed in the methods of judging sheep, considering the market classes and grades, and the characteristics of the principal breeds. *Laboratory, two hours, third term.*

SENIOR CLASS.

808. Principles of animal breeding: The lectures of this course will embrace the principles and practices involved in the improvement of the domestic animals. The subjects of reproduction, variation, selection, heredity, line breeding, inbreeding, cross-breeding, grading-up, etc., will be discussed in their relations to practical breeding problems. *Lectures, two hours, first term.*

809. Advanced feeding: This course consists of lectures, supplemented by reference reading, upon the most profitable methods of producing, finishing, and marketing, pork, beef, and mutton. The various concentrates and roughages are discussed as to their importance and efficiency as feeds for horses, mules, and dairy cattle. *Lectures, two hours, entire session.*

810. Meats: This consists of a study of the structure and composition of meats, quantity, cost and food value of the various cuts of beef, mutton, and pork; exercise is also given in judging the carcasses of the different classes of animals. A study is made of how the home-dressing and home-curing of pork is carried on. Lectures are given upon the effect of feeding and breeding of the different animals as affecting the value of the carcass and the quality of the meat. *Laboratory, two hours, second term.*

811. Poultry: In this course an effort is made to acquaint the student with the different types of poultry with relation to their use and value on the farm. Instruction is given also in feeding, managing, housing, and judging poultry. *Lectures, two hours, third term.*

812. Judging horses and mules: Lectures and laboratory work are given in the judging of the various classes of horses and mules which are adapted to Alabama conditions. *Laboratory, two hours, first term.*

813. Live stock management: The raising of horses, cattle, sheep, and swine as a business, is discussed in full detail, featuring the care and management in production and marketing. A study is made of the methods used by the most successful stock farmers. Practical work is given in preparing stock for shows and sales.

This course will be limited to and required of students majoring in Animal Husbandry. *Lectures, one hour; laboratory, two hours, entire session.*

814. Herd book study: This includes a study of the various herd books with the view of becoming familiar with the pedigrees of the leading strains and families of the different breeds of livestock. Emphasis is made on the methods and rules of registration for each of the breeds of livestock. The rules and regulations governing the importations of live stock into the United States and into Alabama, together with the rules and regulations governing the moving of live stock within the United States and Alabama, are studied. *Lectures, two hours, second term.*

815. Dairying: This course is outlined to meet the requirements of the senior veterinary students and is very similar to the course outlined in 804. *Lectures, one hour; laboratory, two hours, second term.*

SPECIAL TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR.

816. Dairying: A separate course in this subject giving special attention and instruction for the benefit of the two-year students in agriculture, is maintained. The student is familiarized with the butter fat tests, the use of the lactometer, determination of the lactic acid in milk, churning, cream separation, etc. Practice is also given in determining the various common adulterants of milk. *Lectures, two hours; laboratory, four hours, first term.*

817. Live stock feeding: This course is offered for the benefit of the first-year veterinary students and the first-year special agricultural students. The food requirements of the animals' bodies are briefly considered. All through this course the practical rather than the scientific side of feeding is emphasized. Special reference is made to feeding horses and dairy cattle. Veterinary students are allowed to discontinue this subject at the middle of the second term. *Lectures, two hours, entire session.*

818. Live stock management: This course, also, is for the first-year veterinary students and the first-year special agricultural students. It consists of a series of lectures on the care, housing, and management of horses, cattle, swine, and sheep. *Lectures, two hours; latter half of second, and the third term.*

819. Dairy cattle judging: The second term is devoted to judging dairy cattle, in the place of the course in dai-

rying. A detailed study of the several different breeds of dairy cattle is made, and their chief distinctive characteristics pointed out. Exercises in practical judging are given by the use of the score card and by comparative judging at the barns. *Laboratory, four hours, second term.*

820. Judging beef cattle: In this course the student is familiarized with the leading breeds of beef cattle and a study of the conformation of each type is made by practical judging. *Laboratory, two hours, third term.*

SECOND YEAR.

821. Judging horses and mules: A special course of judging is maintained for the second year special students in agriculture. The various types of horses and mules and the market classes are studied. Representatives of the different classes are brought before the students who are, by the detailed study, given an opportunity to become thoroughly familiar with each of them. *Laboratory, four hours, first term.*

822. Poultry: This course in poultry consists of the study of the types and breeds; the housing, feeding, and caring for all classes and ages. From time to time hours are spent in judging. *Lectures, two hours, first term.*

823. Swine judging: This course is a continuation of the course of judging begun in the second year by the study of horses and mules. The leading breeds of swine are kept at the station barns, and the student has ample opportunity to become thoroughly familiar with each. The difference in function and conformation between the lard and bacon types, and the scrubs or natives, is pointed out. A study is made in practical judging by the use of the score card and by comparative judging. *Laboratory, four hours, second term.*

824. Meats: This course includes a study of the effects of various feeds on the meat and lard of hogs, and other animals; finishing stock for slaughter; slaughtering; dressing and curing of the meat. In the laboratory work the student is required to put into practice the methods taught. *Lecture, two hours; laboratory, two hours, second term.*

825. Principles of breeding. A course of study of the principles of breeding live stock, giving special attention to the problems of the practical breeder. Much attention is given to fecundity, in-breeding, cross-breeding, grad-

ing-up, and inheritance. Variation; its causes and benefits are studied. *Lectures, two hours, third term.*

826. Sheep judging: A course is given to make the student thoroughly familiar with the leading breeds of sheep, their conformation and uses. *Laboratory, two hours, third term.*

THE DEPARTMENT OF SCHOOL AGRICULTURE OR AGRICULTURAL EXTENSION WORK.

PROFESSOR DUNCAN.
PROFESSOR HOBDY.
ASSISTANT MRS. ROBINSON.
ASSISTANT NEGLEY.
ASSISTANT JONES.

The department of School Agriculture or Agricultural Extension Work was created in June, 1909, by the Alabama Polytechnic Institute in co-operation with the United States Department of Agriculture, Washington, D. C.

There are three phases or lines of work for the agricultural colleges:

1. The experimental or research work which is conducted on the station farm in various laboratories.
2. Class room and laboratory teaching for students who come to college.
3. Outside teaching or extension work.

The National Country Life Commission appointed by the President in 1908 for the purpose of taking stock of country life conditions, in order that the President might make intelligent suggestions to Congress for legislation to improve these conditions, has, as one of its three final recommendations, the following to say about extension work:

"Each state college of agriculture should be empowered to organize as soon as practicable a complete department of college extension, so managed as to reach every person on the land in its State, with both information and inspiration."

Extension teaching includes work along the following lines:

1. Personal acquaintanceship in such a way as to arouse interest in farming.

2. Giving information by personal correspondence and circular letters.
3. The publication of leaflets and pamphlets along agricultural and other educational lines.
4. Co-operating with and assisting various organizations and societies having for their object the improvement of agricultural conditions.
5. Assisting and co-operating with schools, aiding them in teaching agriculture, in improving school grounds and in making school gardens.
6. Arranging and directing reading courses for farmers and farmers' wives.
7. Conducting demonstrations on the farms connected with schools.
8. Running educational trains.
9. Assisting in farmers' short courses and farmers' institutes.
10. Organizing boys' and girls' Farm-Life Clubs.
11. Conducting correspondence courses for farmers.

COLLEGE OF VETERINARY MEDICINE AND SURGERY

By direction of the United States Civil Service Commission and Department of Agriculture, this college has been added to the list of accredited veterinary colleges, and placed in class A.

VETERINARY MEDICINE AND SURGERY.

PROFESSOR CARY.
ASSISTANT PROFESSOR MCADORY.
INSTRUCTOR WEBB.
INSTRUCTOR FERGUSON.
INSTRUCTOR PRITCHETT.
LECTURER BAHNSEN.
LECTURER WHITE.

PHYSIOLOGY AND VETERINARY SCIENCE.

101. Physiology: The students in the regular and special agricultural courses, in all of the pharmacy courses, in the course in chemistry and metallurgy, and in the three-year course in veterinary medicine and surgery, all study elementary physiology. The aim of the course is to teach anatomy, histology, hygiene, and sanitation. The instruction is given by lectures, demonstrations, and text-book. Text-book, Martin's Human Body (Advanced). *Two hours, entire session.*

102. Veterinary science (elective): For students in agriculture. Lectures and chemical work in the junior year. In the senior year, the student may elect, with the consent of the professor in charge, six hours in the regular three-year veterinary course. The aim of the instruction given to the agricultural students is to teach such lessons as will enable them to prevent many diseases on the farm by correct hygiene and sanitation. At the same time they will be instructed in the ways and means of treating and handling the common diseases of farm animals. This work will prepare them for the "first aid" treatments and emergencies as well as for the course in veterinary medicine and surgery. *Five hours, junior year; six hours, senior year.*

Veterinary Laboratory

VETERINARY MEDICINE AND SURGERY.

The three-year course in veterinary medicine and surgery leads to the degree of Doctor of Veterinary Medicine. It is the outgrowth of fifteen years' work of the department of physiology and veterinary science. Moreover, it has been established to meet the demand of the young men of the South who desire to become educated veterinarians, and for students who desire to prepare for the study of human medicine.

EQUIPMENT.

The main veterinary building has an independent gas plant and a connected sewer system. It is supplied with electric lights and water. The building contains an office, two lecture rooms, a physiological laboratory, and a museum on the first floor; on the second floor, are located two research laboratory rooms, a library and reading room, a large lecture room containing an incubator room, and all the necessary apparatus for pathological, histological, and bacteriological work.

A separate building is used as a house for small animals (rabbits, guinea pigs, pigeons, etc.) that are employed for experimental and demonstration work in bacteriology, histology, and physiology.

The anatomy division has a separate one-story brick building with good ventilation and extensive sky-light. It is supplied with gas, water, and electric lights. The anatomy museum contains the skeletons of man, the horse, the ox, the sheep, and the pig, and models of limbs and special organs of man and the horse. It is also supplied with different lots of bones of the horse with dissected and dried limbs showing the relation and attachment of muscles. An hexagonal operating pavilion thirty-six feet in diameter has just been completed. It is supplied with water and electric lights and lockers for students.

The veterinary hospital contains five box stalls, four open single stalls, an office, and feed room, on the first floor; a large room for storing hay, fodder, and feed, is found on the upper floor. The veterinary department has for its exclusive use about six acres of land divided into lots, pens and paddocks. In one of the lots, are located two large sheds having a capacity for accommodating one hundred and twenty-five cattle or large animals. These sheds are used for tick fever inoculation purposes and for isolation of animals affected with infectious diseases.

The three-year veterinary course students take five terms of work in the department of animal husbandry and dairying, one year's work in pharmacy; four terms of work in the chemical department, two terms of work in botany and one year's work in English. The facilities and equipment of these department are excellent.

The veterinary course is especially strong in practical laboratory work.

1. In anatomy the work of dissection is continued through the first and second years and the first term of the third year. It is a well established fact that useful surgical or real anatomy can not be acquired without careful and thorough work in the dissecting room. Special stress is given to comparative anatomy of the horse, ox, sheep, pig, and dog.

2. Clinical laboratory work is also required throughout the course. The clinical work comes six days in the week and the cases presented embrace mules, horses, cattle, sheep, dogs, poultry, and hogs. The variety is such as to illustrate a large number of diseases, surgical operations, and therapeutic applications.

3. The physiological laboratory is supplied with apparatus for tests and experiments in physiology.

4. The laboratory for pathology, histology, and bacteriology is extensive, and is fully fitted with the latest apparatus. This laboratory has been the outgrowth of twenty years of cumulative additions. The aim is to teach students to work in the laboratory rather than to memorize the printed page of the text-book.

5. In chemistry and toxicology the students work in one of the best of chemical laboratories.

6. In pharmacy, the students work in practical pharmacy for five hours a week for a half-year. In this they learn to recognize, compounds, and dispense drugs.

7. The animal husbandry department affords ample facilities for practice in feeding and judging cattle, sheep, hogs, and mules.

8. The dairy department gives practical laboratory work in dairy operations and in handling and feeding dairy cattle.

9. The botanical department is well equipped and gives excellent opportunity for laboratory work.

10. The subjects in the course of study are such as are required in the leading veterinary colleges of America. The course meets the requirements of the American Veterinary Medical Association and the Bureau of Animal Industry and United States Civil Service Commission. It is the aim to have the teaching staff meet the requirements of the best standards. The length of the course is three years of nine months each.

FIRST YEAR.

103. Human physiology: Elementary human physiology. The instruction is given by lectures, demonstrations, and text-books. *Two hours, entire session.*

104. Histology: Deals with the minute anatomy of the various tissues. It includes methods of fixing, imbedding, sectioning, mounting, staining, and a microscopical study of the tissues. Histology is studied by lectures and by laboratory work. *Five hours, first and second terms.*

105. Embryology: This is a study of the development of the embryo and is designed to prepare the students for the study and practice of obstetrics. *Five hours, third term.*

SECOND YEAR.

106. Veterinary physiology, recitations: Treats of the actions or functions of the various vital organs of the animal body. Attention is also given to the laws of health and the conditions most favorable to the healthy action of the animal body. *Two hours, first and second terms.*

107. Physiology laboratory: A part of the course deals with chemical physiology and the vital processes of the organs of the domestic animals. *Two hours, third term.*

108. Bacteriology: The principles of bacteriology and chief pathogenic organisms are carefully studied. *Three hours in class room and three in laboratory, first term and first half of the second term.*

109. Pathology: This deals with the general pathological anatomy and histology as observed in man and different species of animals, and a study of the cellular changes in diseased tissues and organs. *Three hours recitations and three hours in laboratory, last half of the second term and entire third term.*

110. Obstetrics: Practical work is given as cases are presented. *Two hours, first and second terms.*

111. Special surgery: This includes surgery of the

head, eye, neck, chest, limb, skin, abnormal organs, urinogenital system and castration. It consists of lectures supplemented by practical operations. *Two hours, second and third terms.*

Botany: A study of medicinal and poisonous plants. *Six hours, third term.*

THIRD YEAR.

112. Surgical exercises: In these exercises the student is required to perform the principal surgical operations. *Two hours, second term.*

113. Infectious diseases: This is a study of the diagnosis and preventive sanitation of the animal plagues. *Two hours, first term; three hours, second term.*

114. Parasites: This subject deals with the parasitic infestations of man and animals. An abundance of material is available. *Two hours, second and third terms.*

115. Meat inspection: Embraces recitations, lectures, and abattoir inspections in the smaller and larger cities of the State. *Two hours, first and second terms.*

116. Milk inspection: The course includes the study of milk adulterants, sanitary construction of dairy barns and dairy houses, conditions of cows and the diseases of dairy cattle; the feed, the water supply, the dairy cans, bottles and wagons, the diseases and filth germ of milk. *Three hours, third term.*

117. Urinalysis: This course is largely laboratory work. *Three hours, third term.*

118. Toxicology: Is a study of the chemical, physical, physiological actions of poisons. The laboratory courses embrace the official tests for poisons. *Seven hours, third term.*

Thesis: Development and preparation of an original theme on some subject relating to veterinary medicine and surgery, or veterinary sanitation and hygiene is required. *Four hours, entire year.*

FIRST, SECOND, AND THIRD YEARS.

119. Comparative anatomy: Based upon the descriptive anatomy of the horse. It includes lectures and dissection. The course in anatomy is continued in the dissecting room throughout the first and second years, and the first term of the third year. The work will be taken up in the following order:

(a) Osteology: Requires a thorough knowledge of the bones of the horse and the comparative variations as found in the ox, pig, dog, and sheep.

(b) Arthrology: The course consists in a study of the joints or articulations and the synovial sacs.

(c) Myology: Includes a study of the muscles with their tendons and synovial sheaths or bursae.

(d) Splanchnology: Treats of the internal organs found in the thorax and abdomen. Special attention will be given to these subjects in the horse, ox, sheep, pig, dog, and cat. It is designed both for the practitioner and meat inspector.

(e) Angiology: It treats of the blood vessels and heart and lymph vessels and glands. This is designed to meet the requirements of the practitioner and meat inspector; hence, the students must locate the lymph and glands in the horse, ox, sheep, pig, and dog.

(f) Neurology: Calls forth a study of the cerebo-spinal and sympathetic nervous systems.

(g) Special anatomy: Comprises the study of the organs of special sense, urino-genital organs, the foot and the larynx.

120. Materia medica and therapeutics: A study of the principal drugs used in veterinary medicine, their doses, physiological actions, therapeutic uses, and prescription writing. *Third term of second year; and first and second terms of third year.*

121. General surgery: This course embraces the general principles of surgery. *Two hours, third term of second year; and first term of third year.*

122. Clinical laboratory: Free clinics. Students are required to study each case. A great variety of cases is always presented. *One to two hours each day, second and third years, and three hours on Saturday for all classes.*

123. Veterinary medicine: This deals with the principles and practice of veterinary medicine. *Three hours, second and third years.*

124. Physiology and hygiene—Teachers' course: The department can give the following line of instruction to prospective Alabama teachers.

1. Structure of human body and animals.

(a). Study of cells, tissues and organs.

(b). How to use the smaller animals in teaching naked-eye anatomy.

2. Physiological actions of the different parts and

products of the animal and the human body. This embodies:

(a). Functional tests.
(b). Chemico-physiological tests.
(c). Physico-physiological tests.

3. Hygiene, embracing instructions in personal health problems.
4. Sanitation, including health conditions of cities, homes, public buildings, farms, barns, dairies, etc.
5. Care of animals on the farm and in the city.

TEXT AND REFERENCE BOOKS.

General Chemistry—Remsen's College Chemistry.

Physiology Recitations—Martin's Human Body.

Physiology Laboratory—Fish's Elementary Exercises in Physiology; Smith's Manual of Veterinary Physiology.

English—to be announced in September.

Anatomy—Sisson's Comparative Anatomy.

Clinical Laboratory—Blank Books or Note Books.

Histology—Piersol, Bohm, Davidaff and Huber, Bailey, and Lectures.

Embryology—Hertwig-Mark; Minot. Lectures.

Livestock Management—Lectures and text-books to be announced later.

Feeding Livestock—Smith; Henry; Jordan.

Animal Husbandry—Crang, and Lectures.

Botany—Lectures; Pammel's Poisonous Plants.

Pharmacy—Lectures; Stevens.

Bacteriology—Lectures; Moore's Bacteriology.

Pathology—Zeigler; Kitt; Adami; Kingsley.

Obstetrics—Williams; DeBruin; Fleming; Dalrymple.

General Surgery—Lectures and Frohner; Moeller.

Special Surgery—Lectures; Moeller; Merillat; Frohner.

Surgical Exercises—W. L. Williams.

Materia Medica and Therapeutics—Wilcox; Winslow; Fish; Quitman.

Veterinary Medicine—Law, Vols. 1, 2, and 3. Moussu; Friedberger and Frohner.

Infectious Diseases—Moore—Law. Vol. 4.

Parasites—Neuman—Law. Vol. 5; Stiles; Kaupp.

Milk and Meat Inspection—Van Slyke; Conn; Ostertag; Peters; Edleman-Eichhorn; Lectures.

Toxicology—Tanner; Fish .

Urine Analysis—Fish.

Restraint of Animals—White.

ORGANIZATIONS

CADET BAND.

A. L. THOMAS, BANDMASTER.

Three musical organizations are maintained—the band, the orchestra, and the glee club. Membership in these organizations is open to any student who has musical talent.

The band is maintained by the college for students who desire to develop their musical ability and for those who wish to learn music. It furnishes music for all college exercises and takes part in military manoeuvres. Regular and individual instruction is given free of charge during the first term, embodying the rudiments of music and general musical information in conjunction with the practical instruction on the instrument. Public concerts are given weekly during the second term, and engagements elsewhere are usually arranged.

A gold medal is given each year by the bandmaster to the member who makes the best record.

The orchestra is an organization for musical recreation, and members are carefully selected by the director, according to their musical ability.

The glee club, comprising the quartet, chorus, and stringed instruments, is a student organization. The services of a musician are secured to assist with the instruction and training of the quartet and chorus. Two concerts are given at the college and concert tours are arranged during the second and third terms.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

S. J. SMITH, GENERAL SECRETARY.

This association is regularly organized and a suite of well furnished rooms has been secured for its exclusive use. Through its weekly meetings and Bible Study Classes it exerts a wholesome Christian influence among the students.

Students are advised to unite with the association when they enter the college.

The ladies of the different churches in Auburn are organized into an auxiliary association to the Y. M. C. A. of the college.

LITERARY SOCIETIES.

There are two literary societies connected with the Institute—the Wirt and the Websterian. Each has a hall in the main building. These societies hold celebrations on the evenings of Thanksgiving day and 22nd of February.

To encourage the literary societies the trustees have directed that a medal be awarded at Commencement to the member of each society who is both efficient and regular in attendance, and who is the best debater. The method of selection is determined by the faculty.

SOCIETY OF THE ALUMNI.

The annual alumni oration is delivered by a member of the society in Langdon Hall on Alumni Day, Tuesday of Commencement week.

OFFICERS OF THE ALUMNI ASSOCIATION.

Rev. Thomas Mangum, '96, Union Springs, Ala.-----Orator.
Thomas Bragg, '01, President ------------Auburn, Ala.
R. D. Webb, '97, Auburn, Ala.--Secretary and Treasurer.

Non-Resident Vice-Presidents.

E. N. Brown, '82------------------Mexico City, Mexico.
Francis C. Dillard, '75---------------------Chicago, Ill.
E. A. Price, '80 -----------------------Nashville, Tenn.
Arthur Redding, '94----------------------Atlanta, Ga.
Oliver J. Semmes, Jr., '97--------------Pensacola, Fla.

Alabama Vice-Presidents.

B. B. Ross, '81--------------------------Auburn, Ala.
W. W. Pearson, '82-----------------Montgomery, Ala.
C. W. Ashcraft, '88--------------------Florence, Ala.
Roger ap C. Jones, '87 --------------------Selma, Ala.
J. Thos. Heflin, '91-----------------Washington, D. C.
Tracy Lay, '03-------------------------Gadsden, Ala.
Jno. V. Denson, '05----------------------Opelika, Ala.
J. R. Rutland, '00 ------------------------Auburn, Ala.
B. L. Shi, '04-----------------------------Auburn, Ala.
M. A. Frazer, '06-------------------------Mobile, Ala.
Rev. Thomas Mangum, '96 --------Union Springs, Ala.
M. S. Sloan, '01---------------------Birmingham, Ala.
Howard Lamar, '82----------------------Jasper, Ala.

ENGINEERING SOCIETY.

All students in the courses of engineering and architecture are eligible for membership in the Engineering Society. Meetings are held twice a month, and the chief purpose of the society is to promote personal fellowship among the members, and closer affiliation with practical engineers. Prominent engineers in all lines are invited to address the society from time to time upon subjects connected with their work. At other meetings the program is supplied by the student members, thus giving opportunity for the students in one department to become somewhat familiar with the problems met with in other lines of engineering.

For the present, the meetings are held in Langdon Hall, but it is expected to provide suitable quarters for the society in the new Broun Engineering Hall. No regular dues are required of the members, but an occasional assessment is made to cover necessary expenses.

AGRICULTURAL CLUB.

The Agricultural Club was organized in 1907. All students interested in agriculture and the agricultural sciences are eligible for membership. The members of the Agricultural Faculty take an active part in the work of the club. Meetings are held once a week, and an effort is made to promote interest in all lines of agriculture, to develop a spirit of good fellowship among the students of the course, and to bring them in contact with prominent workers of the science as opportunity offers to present them on the regular program.

Meetings are held in the club room in Comer Agricultural Hall.

VETERINARY MEDICAL ASSOCIATION.

The Veterinary Medical Association was organized in 1907. The meetings are held bi-weekly in the veterinary building. Medical subjects are discussed by the members or by some invited speaker or member of the veterinary faculty. All students of the Veterinary College are eligible to membership. The objects of the association are fraternal, intellectual and cultural. The annual banquet of this association is an occasion of good fellowship for the students, faculty, and veterinary alumni.

GYMNASIUM AND ATHLETIC FIELD.

The Gymnasium is situated at the west end of the athletic and drill grounds, and contains one room, 80x40 feet, with strong beams above for fastening the usual fixtures. The Athletic field has a quarter-mile cinder track and ample space for football, baseball, and general athletics.

Drake Field—A new athletic field, named in honor of the Surgeon, Dr. J. H. Drake, has been provided for baseball, football, and track athletics. It is situated on the experiment station grounds near the gymnasium. It will be gradually beautified and equipped with necessary buildings and accommodations.

DISCIPLINE REGULATIONS.

The government of the college is administered by the president and faculty in accordance with the code of laws and regulations enacted by the trustees.

Each student upon entering is required to sign his name in the matriculation book and pledge himself to obey the rules and regulations of the college.

All students are required to wear the prescribed uniform.

Attention to study and punctuality in attendance on recitations and all other duties are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using or causing to be brought into the college limits, intoxicating liquors.

Students are not permitted to participate in any public entertainments, or game, without previously obtaining the consent of the faculty.

No student will be permitted without the approval of his parent or guardian, to take part in a public game of football.

No student who has failed in two or more subjects will be permitted to be absent from college for athletic contests or other purposes.

(a) Every absence from recitation or examination is graded zero.

(b) When the grade of a student is lowered by reason of absence, for which satisfactory excuse can be rendered, a special re-examination may be subsequently granted, and the grade made on the special re-examination alone is substituted for that previously received.

O. D. Smith Hall

(c) Only sickness, as reported by the surgeon, or absence by reason of family sickness, or official or collegiate business, will constitute a satisfactory excuse for granting a re-examination.

When a student is called away from college by his parents for reasons other than those specified above, his zeros for absence are not removed.

The term grade of a student is the average of his daily sessional and term examination marks, found by giving due weight to the term examination.

Only privates of the senior class in full standing who are candidates for graduation may be excused by the president from all military drills, and also students over twenty-one years of age *at the time of entering college* that are permitted to devote their time to one special study, as chemistry, agriculture, pharmacy, or engineering, provided the time devoted to drill is spent by them in laboratory work.

No student can remain an officer who receives during the session more than one hundred demerits.

BOARDING.

The students board at Smith Dining Hall or with families of the town of Auburn, thus enjoying all the protecting and beneficial influences of the family circle.

For each house an inspector is appointed, whose duty it is to report those who are guilty of any violation of order. The report of the inspector is made to the commandant at stated intervals.

Students, after selecting their boarding houses, are not permitted to make changes without obtaining permission from the president, and this permission is given only at the close of a term, except for special reasons approved by the parent.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the senior class are exempt.

The drills are short and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students, unless excused on the written request of parents for religious scruples, are required to attend these exercises, and also to attend the church of their choice on Sunday morning.

Opportunities are also offered for attending Bible classes every Sunday.

DISTINCTIONS.

Distinctions are awarded in the different subjects of each class to those students whose grade for the entire year is above ninety per cent.

Certificates of distinction are awarded in public on Commencement day to those who obtain an average of ninety per cent in all the prescribed studies of a regular class; and also to those who obtain three distinctions in the freshman class, four in the sophomore class, five in the junior class, and six in the senior class; provided they have satisfactorily passed all the regular examinations of that session, and have not received forty demerits during the year.

A distinction is not given in the senior class if the average grade in any one subject is less than 75 per cent.

HONORS.

Members of the senior class who attain distinction at the final examinations with an average grade, in the subjects required, of 95 per cent are published as *Graduates with Highest Honor.*

Those who attain distinction with an average grade of 90 per cent. and less than 95 per cent. are published as *Graduates with Honor.*

Those who attain less than 90 per cent. and more than 60 per cent. are published as *Graduates.*

Students of the classes lower than the senior who attain distinction with an average grade in the required subjects of 95 per cent. are published in alphabetical order as having attained *Highest Distinction.*

RECORDS AND REPORTS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

At the close of each term and at regular intervals reports giving the grade made by each student are sent to the parent or guardian.

EXAMINATIONS.

Written examinations on the studies of the half-term are held by each professor during the months of October, February, and April. Each examination occupies one hour.

At the end of each term written examinations or written and oral, are held on the studies passed over that term.

Special examinations are held only by order of the faculty and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters college shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except for providential reasons.

HONOR SYSTEM.

During the session of 1910-11 the Honor System, which for years had been in effect in the higher classes, was adopted by the entire student-body of the institution, to apply to all work done in class room and on examinations. Under this system the student is pledged neither to give nor receive any assistance, whatsoever.

All students upon entrance subscribe to the Honor System as in force at this institution.

Proper regulations for administering the system have been adopted by the student-body.

The spirit of truth and honor, thus fostered in the examination room, is an efficient means of raising the scholarship, and tends to inculcate high ideals of honor among the students.

SCHOLARSHIPS—PRIZES.

The following scholarships and prizes have been established:

The William Leroy Broun Memorial Scholarship of $170, established by the Alumni Society, in memory of the late distinguished president of the Institute.

The Ligon Scholarship of $170, established by Col. R. F. Ligon, Montgomery, Ala.

The Thomas Scholarship of $170, established by Judge William H. Thomas, Montgomery, Ala.

The Ball Scholarship of $170, established by Mr. Fred S. Ball, Montgomery, Ala.

The Dunklin Scholarship of $600, established by Mr. and Mrs. J. C. Street, Opelika, Ala., in memory of Prof. J. T. Dunklin, former professor of Latin in the college.

The 1908 Scholarship of $150, established by the Class of 1908.

The Alice Carr Scholarship of $180, established for young women by the late Miss Alice Carr, Auburn, Ala.

The Ransom Memorial Scholarship of $125 per year, established by the Alumni Association in memory of the late Prof. A. McB. Ransom, is available for students in the junior and senior classes of the course in chemistry and metallurgy.

The Jewish Loan Scholarship of $1,000, established by a former student of the college.

A scholarship has been established for worthy musicians who are in need of assistance in defraying their college expenses.

The Henderson Scholarship of $100, established by Judge W. L. Henderson, of Miller's Ferry, Ala.

The Sidney Smith Memorial Scholarship of $100, established by his parents, Mr. and Mrs. Smith, Bessemer, Ala.

The C. S. Yarbrough Scholarship of $1,000, established by Dr. C. S. Yarbrough, Auburn, Ala.

The scholarships enumerated above are loan scholarships, granted to worthy young men and women, to be returned after graduation.

The Robert E. Lee Memorial Scholarship of $100, an annual donation for the son of a Confederate veteran, established by the Children of the Confederacy of Alabama under the auspices of Mrs. Mary G. Pickens.

The above named scholarships and ten other scholarships are administered by the Alumni Society. (*For information, address R. D. Webb, Secretary*).

The Architects' Prizes, Medals to the two members of the senior class in the department of architecture who are most proficient in design. Established in 1911 by the Society of Architects in Alabama.

The Thomas Essay Prize, a gold medal offered by

Library

Hon. William H. Thomas, of Montgomery, Ala., for the best essay by any undergraduate student of the college. The essay must be written under the supervision of the department of English. 1912, *John Albert Key*, Florida.

THE ORATORICAL PRIZE, medal to that member of the junior class who composed and delivered the best oration on junior class day of Commencement.

1913, No contest.

THE ORATORICAL PRIZE, for the Annual Inter-Literary Society contest, February 22.

1914, *Daniel DeKalb Gibson*, Clay County.

SOPHOMORE MEDAL IN DECLAMATION for Annual contest, May 1st, 1913. *Daniel DeKalb Gibson*, Clay County.

PRIZE FOR BEST DEBATER, a medal given annually by the Board of Trustees to the best debater in the Wirt and Websterian Literary societies each.

1913, Websterian Society, *James Reid Campbell*, Macon County.
Wirt Society, *William Howard Hudson*, Clay County.

MUSIC MEDAL, 1913, *Solomon Everett Stein*, Limestone County.

BATTALION MEDAL, for the best drilled soldier.

1913, *James Madison White*, Montgomery County.

PRIZE FOR BEST DRILLED COMPANY, a sword given by Board of Trustees.

1913. *Boyd Shaver*, Montgomery County.

LIBRARY.

Librarian, JAMES R. RUTLAND.

Assistant Librarian, MISS MARY MARTIN.

The beautiful Carnegie library building is constructed of stone and pressed brick. The reading room is 80x40 feet, and the building is equipped with every convenience. It is lighted by electricity and heated by steam. The capacity of the stack room is sixty thousand volumes. The library now contains about 25,000 bound volumes, including valuable reference and scientific books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room and is thus made an important educational feature.

THE O. D. SMITH COLLECTION.

The library of the late Prof. O. D. Smith has been presented to the college by Mrs. O. D. Smith, and is preserved as a memorial to his long and distinguished services to the college.

THE F. D. PEABODY MEMORIAL ROOM.

Through the generosity of Mr. George Foster Peabody, New York City, an annual fund of fifty dollars, income from a permanent investment, is available for the purchase of books and furniture for the "F. D. Peabody Memorial Historical Seminary." F. D. Peabody, Esq., was a distinguished graduate of the Class of 1876.

THE W. D. TAYLOR MEMORIAL COLLECTION.

The engineering library of the late W. D. Taylor, chief engineer of the Chicago and Alton Railway, was bequeathed by him to the Alabama Polytechnic Institute and is preserved by the college as a memorial to this distinguished alumnus. Mr. Taylor was a graduate of the class of '81, and was regarded as one of the leading civil engineers of the United States.

MUSEUM.

The Museum occupies a large room in the third story of the Main Building. It is provided with suitable cases and is equipped with valuable specimens and models of an instructive character.

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Board, including lodging, fuel, and lights, is furnished at $13.00 to $17.50 per month.

For non-residents of the state, there is a charge of tuition of $20.00 per session, payable on matriculation, in addition to the annual fees payable by all students. A student once entering as a non-resident student will not be permitted to claim residence unless his parent or guardian becomes a resident or taxpayer on property in Alabama.

The necessary expenses for a session, not including uniforms or books, are, for a resident of Alabama, as follows:

College fees	$ 15.00	$ 15.00
Laundry fee	12.50	12.50
Board, lodging, fuel, and lights	117.00	157.00
Total	$144.50	$185.00

By special arrangement with the college authorities, Mrs. M. M. O'Neal and Mr. B. T. Blasingame will accommodate students with board, lodging, and fuel for $12.50 per month.

This estimate does not include the cost of the uniform, $14.00, nor of the books, say from $5.00 to $15.00, or the laboratory fees in the higher classes, $5.00.

LABORATORY FEES.

For each student in the junior or senior laboratory in pharmacy, chemistry, electrical, or mechanical engineering, a fee of $5.00 per session is required for each department. In the department of veterinary medicine, a dissecting fee of $10.00 is charged. In the department of animal industry a dairy laboratory fee of $3.00 is charged. These fees are payable *on admission to the laboratory,* and are not remitted

Special students in laboratory work will pay additional fees for each separate division of work, and will be charged with all material consumed in experiments.

UNIFORMS.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made by a contractor, and are of excellent cloth manufactured at the Charlottesville mill. A suit, including cap, costs at present $14.00. It is neat and serviceable, and less expensive than ordinary clothing.

CONTINGENT FEE.

A contingent fee of $2.50 is required to be deposited by each student on matriculation to cover any special or general damage to college property for which he may be liable. General damages are assessed on the body of students.

At the close of the session, the whole of the contingent fee or the unexpended balance, is refunded to the student.

AMOUNT OF DEPOSIT.

All fees, including laboratory fees, are payable on matriculation. *By order of the Trustees a matriculation fee of* $12.00 *is retained from deposits of students who withdraw.*

Fees to be paid on entrance:

Incidental	$ 5.00	
Library	2.00	
Surgeon	5.00	
Contingent	2.50	
Athletic	6.00	
Uniform	14.00	
Laundry fee for session	12.50	
For a resident of Alabama	$47.00	$47.00
Tuition non-resident		20.00
For a non-resident		$67.00

Besides the above, the student should deposit with the treasurer enough to pay for books, one month's board, incidentals, amounting to say $28.00. Hence a resident of Alabama should deposit with the treasurer $75.00; a non-resident, $95.00. For a student entering after January 1st, the deposit for laundry fee is seven dollars ($7.00).

FUNDS OF STUDENTS.

Parents or guardians are advised to deposit with the treasurer of the college all funds desired for sons or wards, whether for regular charges or college fees or board or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc.

The college cannot be held responsible for the expenses of a student unless the funds are deposited under specific instructions from the parent or guardian to the treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble and encourages idleness.

NON-RESIDENT STUDENTS.

Tuition for students not residents of Alabama is $20.00 per session, unless remitted by the trustees to worthy students upon the recommendation of the faculty.

The remission of this tuition fee to non-residents students will be granted in the form of a free scholarship for the succeeding year to those who obtain a distinction the preceding year, or who, by reason of merit, are deemed worthy.

This tuition for non-residents is remitted to sons of ministers of the Gospel.

HONOR SCHOLARSHIPS.

The following non-resident students were granted, each by reason of special merit in conduct and scholarship during the session of 1912-1913 an honor scholarship, which exempted from tuition fees:

William Edward Arnold	Florida
Edwin Fry Barry	Texas
Augustus Tompkins Graydon	South Carolina
Philip Heyman Hagedorn, Jr.	Georgia
Crawford Buchanan Hawkins	Mississippi
Robert Edward Herring	Tennessee
Henry Lord Page King	Georgia
John Rush Lester	Georgia
Charles McLendon	Georgia
Clifford Braswell McManus	Georgia
Joel Philip Melvin	Tennessee
Carl Dent Montgomery	West Virginia
John Boyd Overstreet	Kentucky
George Arthur Pfaffman	Indiana
William Burley Tisdale	Florida
Wendell Holmes Tisdale	Florida

THESIS.

Each applicant for a degree is required to write and submit to the faculty a thesis, or oration and read or deliver the same at Commencement, if required by the faculty.

There may be presented with the approval of the professor in charge, a carefully written report of special work done in a laboratory, showing independent investigation and discussion of some subject.

It must be given to the professor by the first of May. The subject must be submitted for approval by January 1st.

SURGEON.

The Surgeon is required to be present at the college daily, to visit at their quarters the cadets that are reported sick, and give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering the Institute.

An infirmary has been established, and is properly equipped.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railway of Alabama.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tide-water. By statute of the State the sale of spirituous liquors and the keeping of saloons of any kind are forbidden.

ACADEMIC YEAR.

The academic year for 1914-1915 commences on Wednesday, September 9, 1914, and ends on Wednesday, June 9, 1915, which is Commencement Day.

It is divided into three terms: The first term extends from the opening of the session to Wednesday, December 23rd; the second term begins Wednesday, January 6th, and ends March 20th; the third term continues to the end of the session.

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VOL. X No. 3

THE BULLETIN

OF THE

ALABAMA POLYTECHNIC INSTITUTE

AUBURN

CATALOGUE
1914-15

ISSUED MONTHLY
BY THE INSTITUTE
MAY, 1915.

Entered as Second-Class Matter, March 29, 1915, at the Post-Office, at Auburn, Ala., under the Act of August 24, 1912.

CALENDAR 1915-1916

Examination for Admission Begins	Monday, Sept. 6, 1915
Session Begins	Wednesday, Sept. 8, 1915
First Term Begins	Wednesday, Sept. 8, 1915
Mid-Term Examinations	Oct. 25, 26, 27, 1915
Literary Society Celebration	Nov. 25, 1915
First Term Ends	Thursday, Dec. 23, 1915
Second Term Begins	Thursday, Jan. 6, 1916
Mid-Term Examinations	Feb. 5, 7, 8, 1916
Senior Class Exercises	Tuesday, Feb. 22, 1916
Literary Society Celebration	Tuesday, Feb. 22, 1916
Second Term Ends	Saturday, March 18, 1916
Third Term Begins	Saturday, March 18, 1916
Mid-Term Examinations	April 15, 17, 18, 1916
Senior Theses Reported	Monday, May 1, 1916
Sophomore Class Exercises	Monday, May 1, 1916
Field Day	Monday, May 1, 1916
Final Examinations Begin	Saturday, May 20, 1916
Commencement Sermon	Sunday, June 4, 1916
Annual Meeting of Trustees	Monday, June 5, 1916
Junior Class Celebration, 10 A. M.	Monday, June 5, 1916
Military Exercises, 4 P. M.	Monday, June 5, 1916
Festival of Lights, 8 P. M.	Monday, June 5, 1916
Alumni Day	Tuesday, June 6, 1916
Military Exercises, 5 P. M.	Tuesday, June 6, 1916
Senior Class Celebration, 8 P. M.	Tuesday, June 6, 1916
Commencement Day	Wednesday, June 7, 1916

Main Building

CATALOGUE

OF THE

ALABAMA POLYTECHNIC INSTITUTE

STATE COLLEGE

FOR THE

BENEFIT OF AGRICULTURE AND THE MECHANIC ARTS

AUBURN, ALABAMA

1915

OPELIKA, ALA.:
POST PUBLISHING CO.
1915

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Wm. F. Feagin, Superintendent of Education *Ex-Officio*

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TERM EXPIRES 1923

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Committee on Entrance Examinations—Professors Petrie, Wiatt, Crenshaw, Webb, Messick, Rutland, Shi.

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Committee on Grounds and Buildings—Professors Wilmore and Walker.

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Edgar Allen Vaughan, M. S. --Field Agent in Entomology

The Institute is a distinctive school of science and its applications; being also the State College for the benefit of Agriculture and the Mechanic Arts, established by the State in 1872 by endowing it with the land grant appropriation made by the United States Congress in 1862.

The leading object of the Institute, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and applications of science.

In its courses of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline and liberal education obtained by the study of language and other sciences are not neglected.

All students are required to study the English language. The Latin, French and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the faculty. The Institute thus endeavors to educate as well as to instruct, to form character as well as give information of value.

William LeRoy Broun Engineering Hall

LABORATORIES AND FACILITIES FOR INSTRUCTION

The Institute possesses facilities for giving laboratory instruction in history, Latin, and the departments of applied science:

COLLEGE OF ENGINEERING AND MINES.

I. Civil Engineering.—A flourishing department of civil engineering has existed in the Institute since its foundation in 1872. The department occupies four rooms; office, lecture room, and spacious drawing rooms. A large amount of practical work is given the students of this department in field work.

Summer Course.—An attendance upon two sessions of the four weeks' summer course which offers practical work in plane and higher surveying and in engineering, is required of the students taking civil engineering.

The department is equipped with transits, levels, compasses, plane tables, tapes, chains, hand instruments, and other necessary equipment. For the summer work there is a complete camping outfit consisting of wall tents, folding camp cots, stools, cooking utensils, dishes, etc.

II. Electrical Engineering.—In the engineering building four rooms and two offices are used by the department of electrical engineering. Two rooms are class rooms, another is used for the telephone laboratory, and the fourth is a laboratory for electrical measurements.

The wiring in this building is arranged so that alternating and direct currents of various voltages for power, lighting, and experimental purposes can be delivered to any room.

In connection with the laboratories there is installed a repair and construction shop furnished with a variety of hand tools and with power-driven machine tools.

A large amount of electrical testing and measuring apparatus as well as commercial machinery has recently been installed in the laboratories.

(*a*) The electrical measurement laboratory is furnished with a variety of resistance boxes, bridges, galvanometers, standard cells, condensers, etc., as well as two photometers. In addition to the laboratory instruments proper, just noted, the department is provided with representatives of most of the types of commercial ammeters, voltmeters, and indicating and recording wattmeters for A. C. and D. C. work. There is also a 30,000 volt transformer for break-down tests of insulating materials.

(*b*) The telephone laboratory is provided with a full line of telephonic apparatus, telephones, relays, condensers, plugs, jacks, lamp and other signals, etc., representative of the Bell and a number of independent telephone companies.

Single pieces are so mounted that they can be connected up in any desired manner and thus the connections of any particular system can be made up and tested out.

Twenty cells of Edison storage battery are used to furnish energy for a board equipped for common battery and magneto service with trunking circuits. This board is a standard 100-line board equipped with one strip of twenty answering and multiple jacks, ringing, listening keys, and cord signals for four cords.

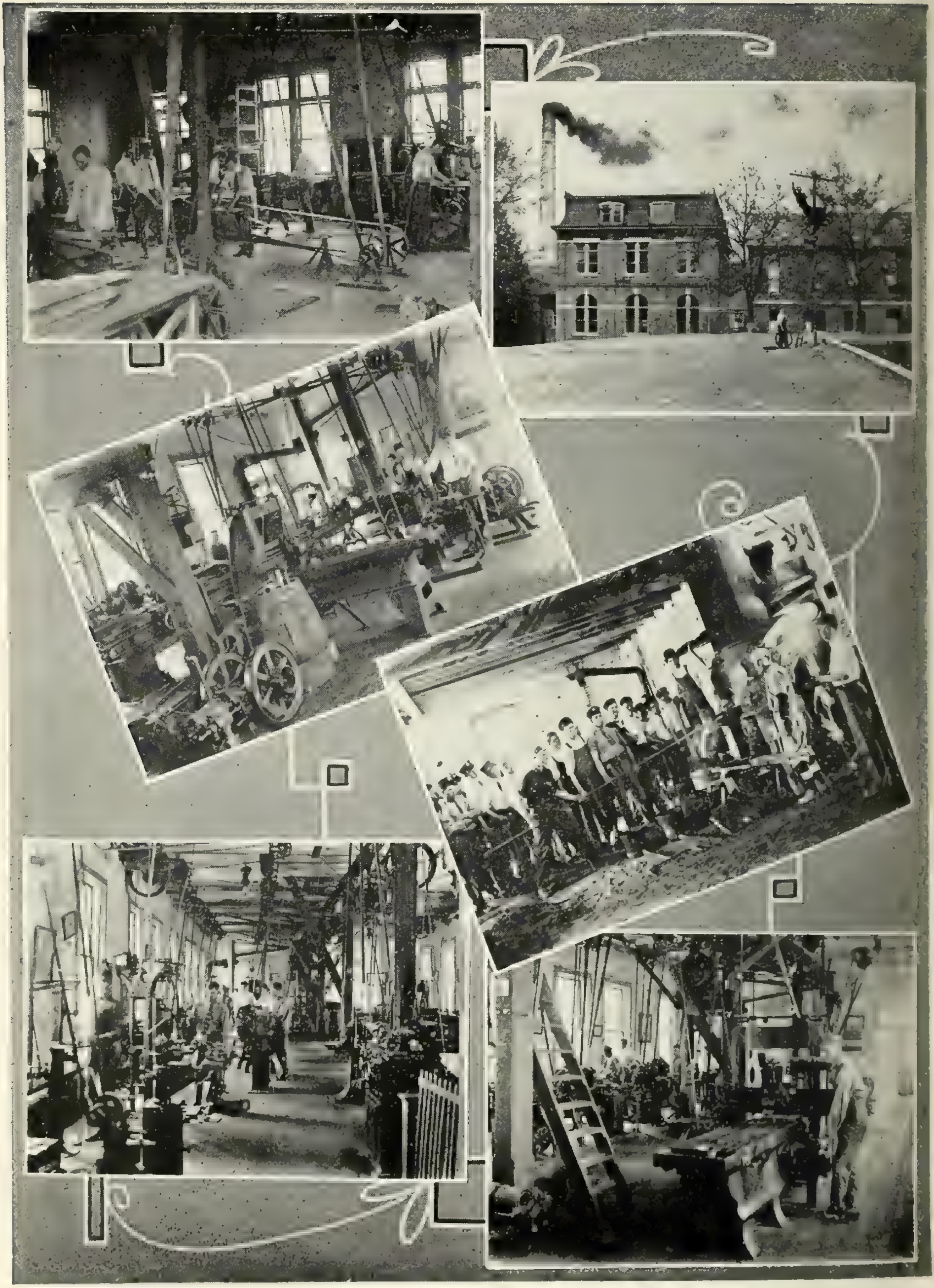
(*c*) The laboratory is equipped with a large number of D. C. and A. C. generators, motors, and other appliances especially adapted for experimental work. In addition the equipment of the power plant is so arranged as to be readily available for purposes of instruction and investigation.

The machines for experimental work are arranged on testing platforms rendering them readily accessible. By means of a comprehensive wiring layout with individual connection boards for each machine, a wide variety of combinations of machines can easily be made.

The main power plant supplies power for operating all shops, and laboratories, pumping water, and lighting the town of Auburn. The connected motor load is a little over 250 horse power and about 100 killowatts are used for lighting service. This plant therefore affords unusual opportunities for students to obtain practical experience in the operation of steam and electrical machinery under commercial conditions.

III. Mechanical Engineering.—The laboratory work is considered an important part of the course and is arranged as far as possible to illustrate and supplement the work as carried on in the class room.

The steam and heat engineering laboratory is located on the first floor of Broun Hall, and the following apparatus is available for instruction: A 35-horse power cross compound engine, especially arranged for experimental work; a surface condenser with air and circulating



Shop Views

pumps attached; a 20-horse power slide valve engine; an electric head light engine; a 15-horse power steam turbine; steam pumps, hot and cold water meters, tanks, scales, indicators, calorimeters, thermometers, pyrometers, steam gauges and apparatus for testing steam gauges.

In the line of internal combustion engineering the following apparatus is available for instruction purposes: A 12-horse power four stroke cycle engine using gasoline or kerosene, a 4 1-2 horse power four stroke cycle kerosene engine, a 2 1-2-horse power kerosene engine, a 2-horse power two stroke cycle gasoline engine, an Ericsson hot air engine, a motor driven air compressor with motor, a volume blower, and the necessary tanks, scales, indicators and other auxiliary apparatus necessary for making tests.

A refrigerating plant of 2 1-2 tons capacity, including ammonia condenser and cooling coils, brine circulating system, pumps, meters, weighing scales and all apparatus needed for a study of the refrigeration cycle. The plant is driven by a steam engine, and provision is made to measure the power delivered and steam consumption of the engine.

The equipment of the power house is also available for instruction and consists of the following: a 160-horse power angle compound engine; a 125-horse power tandem compound engine; a 60-horse power simple engine; a 25-horse power Corliss engine; a 200-horse power water tube boiler; a 100-horse power water tube boiler; two locomotive air pumps.

Another room on the first floor of Broun Hall has been fitted up for a laboratory for testing of materials. In it are installed a Riehle testing machine arranged for making transverse, compression and tension tests, and micrometer apparatus for measuring the deformation of the specimen under test, and an Olsen torsion testing machine with auxiliary apparatus. There is also provided a cement testing outfit consisting of a testing machine, sieves, briquette moulds, boiler, and other apparatus for testing the strength, setting properties, fineness, and specific gravity of cement.

On the second floor of Broun Hall is located a laboratory for testing fuels, furnace and illuminating gases, and lubricants. The present equipment consists of a Mahler bomb calorimeter and a Parr calorimeter, for determining the heating value of fuels, complete apparatus for collecting and testing flue and furnace gases, apparatus for determining viscosity, the specific gravity, flash point, the coefficient of friction, and other properties of lubricating oils. A small electric motor furnishes power for grinding samples, driving blower for air blast, stirring, and other such work.

IV. Mechanic Arts.—The instruction in shop work is used as an auxiliary in technical education, and as a school of manual training in the arts that constitute the foundation of most industrial pursuits. The work performed by the students is instructive in character, and is intended to give the greatest amount of instruction in principle with the least repetition of operations, and the smallest consumption of time. The work is executed from drawings, and the instructor in charge of the class makes the lessons before the class, or gives such specific directions as may be necessary to enable the student to make them. This is supplemented by individual instruction.

All students in the freshman class take this shop work, three periods a week, each period being two hours long. The sophomore class takes two periods a week. The purpose is not to teach a trade, but to train the eye, the hand, and the mind to more perfect co-operation, a training which will be of value in any pursuit in life. This training involves the principles at the foundations of all trades, of equal value to the student who wishes afterwards to learn a trade.

Three-phase electric motors are used for driving the different shops, the motors receiving current from the large alternator in the power house.

(*a*) The wood department is located in a room 90 x 50 feet, and is provided with a surface planer, a variety saw, a swing cut-off saw, a boring machine, and a grindstone. There are in addition, thirty benches for carpentry work, with the necessary tools.

(*b*) The wood turning and pattern shop is located in a commodious room 40 x 60 feet, in the second story of the new power house. It is equipped with twenty-eight wood-turning lathes, a grindstone, a band saw, a buzz planer, a pattern maker's lathe, a double circular saw, a surface planer and a drum sand-papering machine.

In each of these departments special tools for occasional use are kept in a tool room for the purpose.

In addition to the regular carpentry tools in the benches each student is supplied with a set of chisels, and plane irons, with a locker to keep them in, and is held responsible for their care and condition.

(*c*) The forge shop is equipped with twenty-four down draft forges, with anvils, hammers, sledges, and other tools necessary for blacksmith work, including a punch and shear for cutting and punching iron, and a blacksmith drill. The blast is supplied by a blower driven by an electric motor. The smoke from the forges is removed through underground passages by a 60-inch exhaust fan and discharged into the chimney.

(*d*) The foundry is equipped with a 23-inch Colliau cupola, having a melting capacity of 2,000 pounds of iron per hour, the necessary molding tools for bench and floor work, benches, a core oven, ladles, molding flasks, a foundry crane, etc. A special blower driven by an electric motor is provided to furnish air blast for the cupola. There is also a brass furnace with crucibles, crucible tongs and the appliances necessary for making brass castings.

(*e*) The machine shop is a room 30 x 100 feet, and is equipped with ten 14-inch, two 16-inch and one 18-inch engine lathes, one 10-inch speed lathe, a 20-inch drill-press, a 10-inch sensitive drill, a 16-inch shaper, two iron planers, one 22-inch by 5 feet and the other 26-inch by 6 feet, a back geared universal milling machine, with vertical milling attachment, a water tool grinder, a bench grinder, a universal grinding machine, a universal cutter and reamer grinder, a twist drill grinder, and two power hack saws. Four of the engine lathes have compound rests, three have taper attachments, and one is fitted with a turret and a large number of special tools and fixtures which practically convert it into a manufacturing lathe, and serve to illustrate the methods of manufacture by duplicate parts.

For chipping and filing, eighteen benches are fitted with vises and each student is supplied with hammer, chisels, files and such other tools as he may need, and a locker in which to keep them. A gasoline engine is installed in one end of the shop, and is used for driving when the steam plant is not running.

The tool room is supplied with general machinist tools, such as chucks, drills, reamers, taps, dies, gauges, jigs, and special tools. A convenient room is supplied with lockers for keeping clothes, and basins supplied with hot and cold water for the use of the students. The different shops are equipped with electric lamps, and current is furnished when necessary.

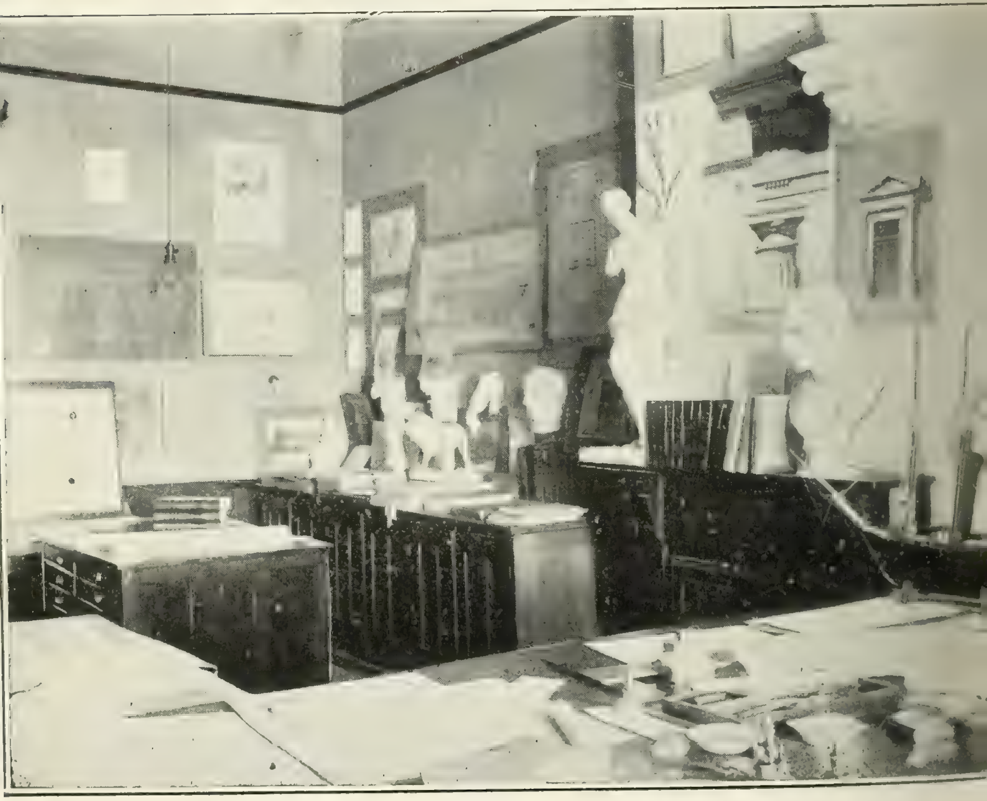
V. Mining Engineering, Geology, Mineralogy.—The department of mining and geology occupies the west half of the east wing of the new three-story engineering building. The third floor is divided into two well-lighted rooms: (1) for lectures and recitations; (2) for draughting. The lecture room is provided with seats to accommodate sixty-four students. In this room is a screen and electric stereopticon lantern for illustrating lectures. The draughting room has a capacity for thirty. Here the student receives instruction in mechanical draughting and in the calculation and plotting of field notes.

The second story is occupied by the professor's office and the mineralogical laboratory. The latter, like each of the two rooms on the third floor, occupies a floor space of about 960 square feet. In this laboratory there are accommodations for thirty-six. Each student is supplied with a blow pipe outfit, a drawer, and a locker, and each desk is piped for gas. The laboratory is equipped with a good type collection of minerals and lithological specimens, as well as working specimens. There is a selection of fossils and casts illustrating the subject of historical geology. A very useful set of about 100 wooden models of crystals has been imported. The geological department has several specific gravity balances of various kinds, contact and reflecting goniometers, a petrographical microscope, a good collection of slides, both for the petrographical microscope, and the stereopticon lantern.

VI. Ore Dressing.—The ground floor is occupied entirely by the metallurgical laboratory. The laboratory is well equipped with ore dressing plants. The concentrating plant consists of a gyratory crusher, two sets of roll crushers, two bucket elevators, four trommels or revolving screens, two classifiers, four Hartz jigs, and a seven-foot Wilfley concentrating table.

The stamp mill is of full size Nissen type, circular discharge and interior amalgamating plate. The outside amalgamating plate is full size, being ten feet long. The stamp mill and concentrating plant are fed from their respective bins by two different types of automatic feed. The ore before entering the bin is crushed to proper size by a Blake jaw crusher. The model cyanide plant illustrates the bleaching department of the cyanide process and the extractor box work. It consists of one solution

Pattern Shop


Architecture

tank, two sand tanks, with false bottoms and filters, one gold tank, and a set of extractor box compartments of the up-flow type.

Besides the equipment already mentioned there is an automatic sampler. The cement floor in this department gives a good surface for illustrating coning and quartering in the process of hand sampling.

A twenty-horse power motor is the source of power for this laboratory. Shafting, belting and gears of various kinds transmit the power to the various machines so that a large variety of mechanism is illustrated.

VII. Architecture.—The department of architecture is located in four well lighted rooms in the Main Building. A floor space of 2,250 square feet is occupied by a lecture room, 25 x 30, a large draughting room, 30 x 35, a room for freehand drawing, 25 x 25, and a library, office, and special draughting room, 15 x 30, all connected by doors. These rooms are well furnished with large, substantial drawing tables and extra tables for freehand drawing, fixtures and additionel equipment; a collection of selected plaster casts of classic sculpture and architectural details, a large number of architects' drawings and signed original plates, and several hundred examples of freehand drawings of various sorts; a library of standard works and portfolios of plates illustrating details of decoration and composition; four hundred lantern slides and many photographs of notable monuments of architecture; manufacturers' samples and catalogues; and various current journals devoted to architecture and the allied arts.

VIII. Mechanical Drawing and Machine Design.—The department of mechanical drawing and machine design is supplied with equipment for teaching mechanical drawing, descriptive geometry, kinematics, and machine design.

A convenient cabinet is supplied with a complete set of Schroeder's descriptive geometry models for demonstrating the principles of descriptive geometry and mechanical drawing. A small reference library and a library of selected catalogues of manufacturers, which is being established for the use of students in advanced machine design, occupy a suitable case. A Beck vertical wall file, 36 x 48 inches, for filing commercial blue prints, is filled with selected blue prints frunished by prominent manufacturers, and is made use of by students in machine design.

A number of kinematic models and a large collection of engineering specialties, sectioned to show interior, which were donated by the various manufacturers, occupy a sectional case, and are used in elementary work in machine design and mechanical drawing. The filing envelopes, which contain the students' drawings, are kept in alphabetical arrangement in a case of drawers.

This department is equipped with an outfit for making blue prints, consisting of two sun printing frames 18 x 24 inches and 30 x 42 inches, each mounted on a car and track and suitable conveniences for washing and drying the prints.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. Four large well-lighted drawing rooms which will accommodate (at one period) two hundred and fifty students, are provided with tables, lock boxes, etc. The drawing rooms have been equipped with one hundred and fifty new drawing tables of the most modern pattern.

COLLEGE OF AGRICULTURAL SCIENCES.

XI. Practical Chemistry.—The chemical apparatus recently purchased for the chemical laboratory consists of a full supply of the most approved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to the first class laboratories, there have been imported a new and improved Schmidt and Heinsch's polariscope, ten short-arm balances of latest pattern, Bunsen's spectroscope, Abbe refractometer, and other instruments for delicate and accurate work.

The investigations that are undertaken in this laboratory by scientific experts in connection with the work of the agricultural experiment station, are of special value to advanced students, and afford them unusual opportunities to learn the methods of scientific research.

The building contains a large general laboratory, that accommodates eighty students, a special laboratory for seniors that will accommodate forty students, a lecture room with a capacity of one hundred and fifty seats, and nine other rooms, all appropriated to instruction and research in chemistry.

The State chemical laboratory for the official analysis of fertilizers is connected with this department.

X. *Agriculture.*—The agricultural experiment station, established in connection with the Institute, where experiments and scientific investigation relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professors in the field, where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

The farm contains 304 acres.

XI. Botany.—The department of Botany occupies the western half of the third floor of Agricultural Hall. The rooms in use include a lecture room having seats for sixty-four students, a general laboratory accommodating forty-five students, a smaller laboratory for bacteriology and pathology accommodating twenty students, two small laboratories for professors and advanced students, two offices, a dark room, and store room. The general laboratory is supplied with microscopes, glassware, and the general equipment of apparatus and materials necessary for gross and microscopic work in plant morphology. The equipment for work in plant physiology and pathology has been very materially increased by the installation of much new apparatus needed for quantitative work in these subjects. These additions include autoclaves, sterilizers, incubator, drying oven, automatic water still, constant temperature baths and ovens, Kjeldahl nitrogen determination apparatus, distilling and extraction apparatus, and many smaller pieces. These accessions to the equipment provide facilities for accurate work, under controlled conditions, in the chemical phases of plant physiology and for cultural studies in bacteriology and plant pathology, and permit expansion and development of the courses offered in these subjects to a degree commensurate with their importance.

The greenhouse of the department has a floor space

30 x 110 feet, with an adjoining laboratory room 30 x 30 feet. It is used for experimental work in plant pathology and plant physiology. The facilities provided are sufficient to permit the growth of ample material for class use in these subjects as well as for the investigation of special problems by the staff.

The botanic garden contains a fairly representative collection of the native trees and shrubs of the state, and it is planned to make a collection of native medicinal plants. A portion of the garden will also be used as an outdoor experimental plat for the growing of materials employed in the work of instruction or in research.

XII. Pharmacy.—The laboratory of this department occupies the first and second floors of the annex to the chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations. The equipment for the laboratory includes a Laurent Polariscope; a Pulfrich refractometer; a vacuum distilling and drying apparatus, consisting of 1-2 horse power air pump, vacuum chamber, condenser, and Bruhl receiver for fractional distillation under diminished pressure, a three-horse power electric motor, a complete outfit for organic combustion work, and three chemical balances.

The new pharmaceutical laboratory on the basement floor of the pharmaceutical building is fitted with steam and has a full equipment for research work in pharmaceutical chemistry.

The students work in the laboratory with the professor from five to eight hours, six days in a week.

On the third floor is located the lecture room, store room, and drug mill room.

XIII. Horticulture.—The plantings on the grounds of the department, and those under its supervision, consisting of orchards, vegetables, small fruits, vineyard, ornamental shrubs, and trees, afford opportunities for practical instruction. In addition there are well appointed and modern greenhouses, with ample, well-lighted and well-arranged laboratory affording further facilities for practical instruction in grafting, budding, seed germination, transplanting, forcing, spray mixing, fertilization, grading, packing, canning, etc. Accurate experiments in the culture of various fruits and vegetables adapted to this climate are constantly in progress. The department library, bulletin files, and other equipment are accessible to advanced students under the usual regulations.

XIV. Entomology. The department of Entomology is well equipped with apparatus for the microscopic work in entomological subjects. An excellent equipment for photographic and photomicrographic work is provided and instruction in these subjects will be given as occasion may arise. The laboratory work is closely related to the lecture work in most cases. Special attention is given to the structure and classification of insects, designed especially to familiarize the student with the principal groups in which the insects are divided, and to give a basis for the selection of a proper method of treatment for their control.

The laboratory work includes also practical exercises in the preparation of the most important insecticides with proper types of constructing apparatus for applying various insecticides, and in a general way, making the student familiar with practical insecticidal work. There are also various exercises in the collection of insects and in the study of various pests which occur in the vicinity.

A reference library containing many general works upon entomology and important publications of the national bureau of entomology and of the state experiment stations is always accessible to students.

XV. Animal Husbandry.—The animal husbandry farm contains about 260 acres; upon this farm is a dairy barn, which accommodates eighteen cows, and a beef cattle shed. The students visit the barns and sheds with the instructors and are thus afforded an opportunity to study the various breeds of live stock and to do stock judging work. In addition to the pure breeds of cattle, and swine upon the farm, there are always graded and scrub animals, which are used in experimental work in feeding, breeding, etc. All of this stock is used in instructional work.

ACADEMIC WORK.

XVI. History.—All advanced work in history is conducted by the laboratory method. This plan has been successfully employed in the junior, the senior, and the graduate classes. A large and well-lighted room has been set apart for this work in the new library building, where all the resources of the rapidly growing library are easily accessible. This room is equipped with maps, diagrams, charts and suitable tables and chairs. The library is a depository for all government publications. These and other books on American history, with which it is well supplied, offer abundant material for research work in the history of our country. The publications collected by the experiment station constitute valuable material for study in industrial history.

XVII. Physics.—The physical laboratory occupies two rooms, one of these being permanently darkened for experimental work in light. It is equipped with numerous standard instruments of precision, such as verniers, micrometers, cathetometers, an horizontal comparator, a Kater's revision pendulum, balances, etc., and a quantity of minor apparatus. Recently there have been added a concave grating spectograph, a large induction coil of 12-inch spark, and other apparatus of value.

XVIII. Military Tactics.—Instruction in this department is given in conformity with the Act of Congress. Students receive the benefit of regular military drill, and in additon, the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties. The department is supplied with cadet rifles and accoutrements for the corps.

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

XIX. Physiology and Veterinary Science.—The veterinary department occupies a separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, thoroughly equipped laboratories for work in bacteriology, milk and meat inspection, and with museum containing skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

There is a separate dissecting room with cement floor and north roof light, constructed especially for this department. This laboratory is used by the professor and students each afternoon for three months.

BUILDINGS.

The frontispiece is a representation of the Main Building. This building is 160 x 71 feet and contains forty-five rooms. It contains lecture rooms, administration offices, physical laboratory, museum, armory, etc.

LANGDON HALL

This is a two-story building 90 x 50 feet. The second story is the audience hall, used for commencement and other public occasions.

POWER HOUSE AND SHOPS.

The first story of Langdon Hall is appropriated to the laboratory of first year wood work in mechanic arts.

The machine shop, forge shop, foundry, and boilers are installed each in separate buildings. A handsome building, two stories in height, pressed brick and stone trimmings, has been constructed for occupation by the power plant on the first floor and by the pattern making department on the second floor. The dynamo laboratory occupies a separate building.

A commodious boiler house has been built. It is of fire-proof construction and is supplied with track and cars for handling coal from the bin to the boiler. Scales are provided for keeping accurate account of the coal consumed.

BROUN ENGINEERING HALL.

The alterations and additions to the William LeRoy Broun Engineering Hall were completed and the building occupied in September, 1910. The finished structure is 250 feet long, 50 to 90 feet deep, and three and four stories in height, enclosing a floor area of 43,500 square feet. In construction this building is practically fire proof and in exterior design conforms in general to the other buildings on the campus. The walls are laid up in selected red brick, with limestone and terra cotta trimmings.

Offices, lecture rooms, and laboratories for the departments of mechanical, electrical, mining and civil engineering, machine design and drawing, are located within this building, and all the interior accommodations are especially arranged to facilitate the special work of each department.

This building, an illustration of which appears on a preceding page, was designed and superintended by the department of architecture.

CHEMICAL LABORATORY.

As shown on the opposite page, this is a two-story structure, 40 x 60 feet, with a rear projection, 35 x 60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and extra terra cotta ornamentation.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building containing rooms and laboratories for the department of pharmacy.

The chemical laboratory for the agricultural experiment station occupies a building 60 x 26 feet, and is appropriated exclusively for chemical investigation and research.

SMITH HALL.

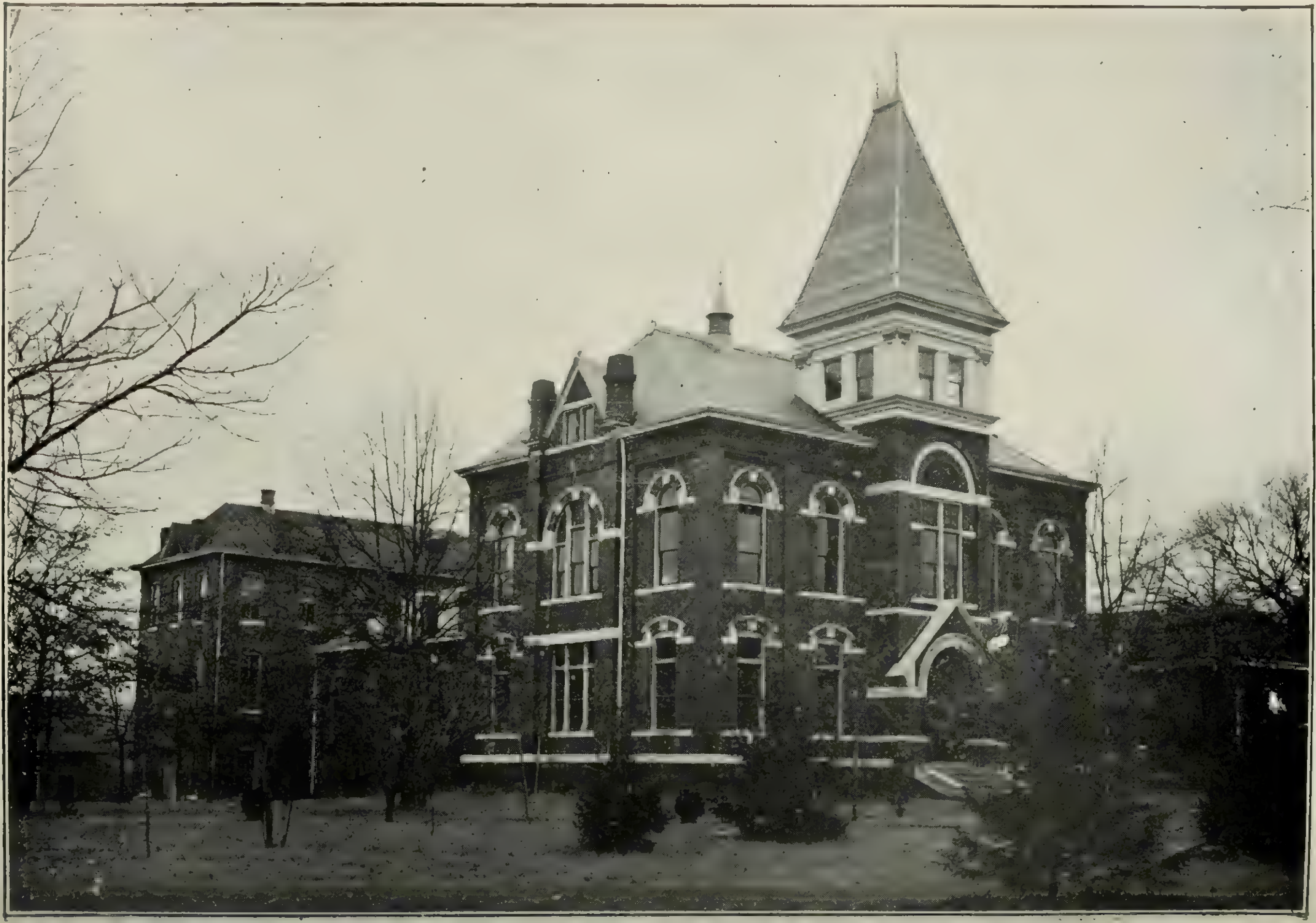
The Otis D. Smith Dining Hall, constructed of stone and pressed brick is two stories in height, and one hundred and forty feet in length. It will accommodate three hundred in the dining hall, and forty in the dormitory above. The style is semi-colonial.

CARNEGIE LIBRARY.

The library building is a handsome structure of classical outline monumental in its general effect. It is presented in an accompanying cut.

AGRICULTURAL BUILDING.

A handsome and commodious building is occupied by the departments of (1) agriculture, (2) horticulture, (3) botany, (4) entomology, and (5) animal husbandry, together with a separate set of buildings for practical work in each of these departments. It is the general opinion that there is no superior, if equal, group of buildings for agricultural purposes in the South. The building is three stories in height and is constructed of pressed brick with stone trimmings.



Chemical Laboratory.

GRADUATES

CLASS OF 1914

HONORS

Members of the Senior Class who attain distinction with a grade of 95 per cent, are graduates with Highest Honor. Those who attain a distinction with a grade of 90 per cent. and less than 95, are Graduates with Honor. Those who attain less than 90 per cent. and more than 60 per cent. are Graduates.

DEGREES

BACHELOR OF SCIENCE

GRADUATES

Ernest Clifton Adkins	Jefferson
Odis Dennitt Allbritten	Marshall
Porter Weakley Allen	Jefferson
William Edwin Arnold	Florida
Andrew Hill Barnett	Bullock
Cleburne Ammen Basore	Jefferson
James Edward Bazemore	Coosa
Robert Fernand Angelo Benson	Mobile
Benjamin Paul Blasingame	Lee
John Luther Bryan	Lee
Peter DeMarkus Burks, Jr.	Georgia
James Reid Campbell, Jr.	Macon
Henry Gray Carter	Georgia
William Taylor Cheney	Marengo
Charles Hadley Cooper	Georgia
Alexander Stephens Corgill	Marengo
John Martin Davis	Jefferson
Martin McLendon Davis	Georgia
Harry Price Dixey	Louisiana
Benjamin Ellsworth Evans	Lee
Herbert Houston Farr	Jefferson
William Bernie Farrar	Marshall
Arthur Trezevant Feaster, Jr.	Jefferson
Millard Woodfin Fendley	Blount
Enoch Dortch Fly	Jefferson
Roger Jerome Franklin	North Carolina
Edward Lawrence Gilder	Montgomery

Homer Henry Gossett	Georgia
Cecil Stewart Grimes	Georgia
Robert Lawrence Groover	Georgia
Gustave Adolph Hanson	Florida
Arthur Zellars Heard	Lee
John Jesse Heard	Lee
Louis Holbrook Howard	Mississippi
Lemuel Jasper Howell	Marion
Andrew Hagan Jackson	South Carolina
Percy Lee Jones	Lauderdale
James Coleman Lee	Jefferson
John Rush Lester	Georgia
Lester Hickman Lewis	Bibb
Eugene Mason Lindsey	Georgia
James Jackson Lovelace	Escambia
Robert Morris Martin	Marion
Hugh Lester Mayers	Lamar
Manly Foster Meador	Marengo
Ivan Wilfred Miller	Walker
Paul Minnis	Mobile
Porter Mixon	Houston
Charles David Moon	Coosa
Alexander Edwin Morrow	Tuscaloosa
Roland Hall Neel	Georgia
Charles Stott Noble	Calhoun
John William Pace, Jr.	Lee
Loomis Gay Pearson	Randolph
Lawrence Whetstone Rainey	Talladega
John Enoch Riley	Jefferson
Otto Karthaus Seyforth	Madison
Chester A. Stewart	Fayette
Redding Stancill Sugg	North Carolina
Charter Howard Taylor	Autauga
Annie Elizabeth Terrell	Lee
Arthur Joel Thigpen	Lee
Henry Asa Vaughan	Marengo
George Sidney Waits	Covington
James Sebastian Watts	Walker
Wilton Wendell Webb	Lee
Frederick William Wendt	Montgomery
Bryan Watkins Whitfield	Marengo
Robert Sidney Whitfield	Hale
Edgar Eldred Williams	Elmore
Walter Herren Wilson	Lee

GRADUATES WITH HONOR.

Edwin Fry Barry	Texas
Frank Ewell Boyd	Chambers
Otto Brown	Choctaw
Marcus William Crenshaw	Limestone
Charles Washington Culpepper	Randolph
Augustus Tompkins Graydon	South Carolina
Joe John Haralson	Lee
William Bowen Henderson	Montgomery
Robert Edward Herring	Tennessee
George Washington Holley	Tuscaloosa
Charles Levi Hollingsworth	Talladega
Marvin Henry Killingsworth	Shelby
Herbert Marshall Martin	Florida
Charles Benton Moore	Dallas
Reb Cleveland O'Briant	Lamar
John Llewellyn Prosser	Mississippi
Frank Park Samford	Montgomery
Guy Maxwell Spearman	Walker
William Burley Tisdale	Florida
Joseph Madison White	Montgomery

GRADUATES WITH HIGHEST HONOR.

Curtis Crawford Harper	Jefferson
McClellan Ratchford	Chambers
Wendell Holmes Tisdale	Florida

GRADUATES IN PHARMACY (PH. G.)

Henry Evan Benbow	Crenshaw
Carl Busey	Monroe
Ealy Elrid Caldwell	Elmore
Clarence Bonner Hines	Wilcox
James Clinton Kent	Elmore
Ernest Clark Pope	Bibb
James Daniel Richardson	Elmore
Walter Jackson Watkins	Coosa
Loather Guy Webb	Calhoun

PHARMACEUTICAL CHEMIST.

Paul Molyneux	Baldwin

GRADUATES IN VETERINARY MEDICINE (D. V. M.)

Daniel Cook, Jr.	Wilcox
John Sydney Cook	Choctaw

Monroe Sublett Esslinger	Madison
Cage Head	Shelby
William Ernest Hollingsworth	Talladega
James Karl Jones	Wilcox
Richard Irvin Kearley	Monroe
Walter Douglas McCormack	Jefferson
Arthur Storey Makin	Jefferson
Leondous Keller Ogletree	Talladega
Joseph Stephen Powell	Choctaw
Edward Genearo Queral	Cuba
Walter Bivins Smith	Calhoun
James Daniel Wilbanks	Tallapoosa

POST GRADUATE DEGREES.

MASTER OF SCIENCE.

John Frederick Duggar	Lee
Alton R. Gissendanner	Dale
Oliver Lynch Howell	Tennessee
Jonathan Bell Lovelace	Escambia
James Arthur Parrish	Randolph
Walter Monroe Sellers	Pike
Clifford Marvin Stodghill	Randolph
Derwood Lee Taylor	Lee
Claud Rodolphus Wood	Franklin

PROFESSIONAL DEGREES IN COURSE.

MECHANICAL ENGINEER.

Daniel Franklin Hixon	Bullock
John Gordon Sparkes	Jefferson

ELECTRICAL ENGINEER.

John Russell Liddell	Wilcox

DEGREES FOR PROFESSIONAL WORK.

CIVIL ENGINEER.

Walter L. Harwell	Florida
Ernest Cecil Haynie	Jefferson
Clifford Anthony Marion Weber	Pennsylvania

DISTINGUISHED STUDENTS

SESSION 1913–1914

Students who receive a grade of above 90 per cent. and less than 95 in three studies in the Freshman Class, in four in the Sophomore Class, five in the Junior, and in six in the Senior, are distinguished for excellence in scholarship, and are awarded Certificates of Distinction. Those who receive a grade above 95 per cent. are awarded Certificates of Highest Distinction.

FRESHMAN CLASS.

DISTINCTION

Walter Gustavus Bevill	Choctaw
Alvin Christy Davis	Geneva
Joseph Best Grimsley	Georgia
John William Johnston	Blount
John Carew Powell	Montgomery
Ralph Thomas Sims	Georgia
Eunice Rebecca Stodghill	Lee
James Withrow Webb	Tuscaloosa
Shu Min Wong	China

HIGHEST DISTINCTION.

George Randolph Bowling	Tallapoosa
Ernest Linwood Deal	Tuscaloosa
Edward Beverly Henry	Lee
George Lampros	Montgomery
James Frederick Pruett	Russell
John Park Shaffer	Tallapoosa
Wilbur Thomas Shinholser	Georgia
Richard Hartwell Thach	Lee
Lamar Mims Ware	Georgia

SOPHOMORE CLASS.

DISTINCTION.

Hayne Coker Appleton	DeKalb
Joseph Davenport Browne, Jr.	Tennessee
Elliott Benjamin Calloway	Montgomery
George Roy Corcoran	Russell
Posey Oliver Davis	Limestone
Vernon James Douglas	Jefferson

Ambrose Camp Duggar	Lee
Herbert Lee Evans	Hale
Harry Gordon Farris	Etowah
Roland Macon Fricke	Marshall
Arnold Edmund Hayes	Jefferson
Henry Lord Page King	Georgia
Cyrus Edson Newman	Coosa
William Charles Payne, Jr.	Tennessee
Edward Ward Smith	Lee
Percy Reynolds Smith	Jefferson
Louis Truitt Wells	Pickens
Samuel Andrew Wingard	Montgomery

HIGHEST DISTINCTION.

James Warren Andrews	Montgomery
Lee Irwin Davis	Mobile
Andrew Orestes Jackson	Pike
Ernest Slager	Tennessee
Leonard Lynn Watkins	Choctaw

SPECIAL STUDENTS.

DISTINCTION.

Louis Roderick Botsai	Jefferson
Ray House	Calhoun
Adolphe LeBron	Elmore
Joseph Robert Rosson	Cullman
George Lewis Staples	Coosa
William Wadsworth Wood	Jefferson
Michael Vernon Zimmerman	Jefferson

HIGHEST DISTINCTION.

Hester Marion Lewis	Bibb

JUNIOR CLASS.

DISTINCTION.

John Frederick Bazemore	Coosa
Oscar Carson Bottoms	Marion
Ernest Carnes	Marion
Robert Dennis	Pike
Clyde Augustus Donehoo	Blount
Julius Albert Fincken	South Carolina
Davis Adolphus Gammage	Barbour
Cosette Woodley Harrison	Montgomery
Crawford Buchanan Hawkins	Mississippi

James Thomas High	Marshall
Claud Mortimer McCall	Escambia
Joel Philip Melvin	Tennessee
Ellison Smyth McKissick	South Carolina
James McCoy Oliver	Tallapoosa
Lex Sneed Owens	Pike
Cleveland Gillespie Sharp	Morgan
James Asa Simms	Sumter
Homer Heard Turner	Colbert

HIGHEST DISTINCTION.

Edward Amende Allen	Jefferson
Albert Bonds	Greene
John Boyd Overstreet	Kentucky

CATALOGUE OF STUDENTS

SESSION 1914-1915.

GRADUATE STUDENTS.

William Edwin Arnold	Florida
Cleburne Ammen Basore	Jefferson
Robert Fernand Angelo Benson	Mobile
Frank Ewell Boyd	Chambers
Otto Brown	Choctaw
James Reid Campbell, Jr.	Macon
Charles Washington Culpepper	Randolph
Arthur Trezevant Feaster, Jr.	Jefferson
Augustus Tompkins Graydon	South Carolina
Joe John Haralson	Lee
Arthur Zellars Heard	Lee
John Rush Lester	Georgia
Eugene Mason Lindsey	Georgia
Herbert Marshall Martin	Florida
Emery Tyler Motley	Randolph
Marvin Pipkin	Florida
John Emmett Pitts	Russell
John Llewellyn Prosser	Mississippi
Ralph Waldo Riddle	Jefferson
Otto Karthaus Seyforth	Madison
George Vaughn Stelzenmuller	Baldwin
William Stewart Ticknor	Lee
Homer Bernard Tisdale	Conecuh
Frederick William Wendt	Montgomery
Joseph Madison White	Montgomery
Edgar Eldred Williams	Elmore

SENIOR CLASS

Charles Jefferson Allen	Lee
Edward Amende Allen	Jefferson
Lawrence Cary Amos	Conecuh
Samuel Faucett Anders	Tuscaloosa
Austin Elser Arthur	Marion
William Emmet Ayres	Lamar
Jackson Frederick Bazemore	Coosa
Joe Marion Beutell	Georgia
Carolus Magnus Blumenfeldt	Mobile
Albert Bonds	Greene

Louis Roderick Botsai	Jefferson
Oscar Carson Bottoms	Marion
John Robert Boyle	Jefferson
James Terrill Brazelton	Jefferson
Andrew Jackson Brooks	Lowndes
William Hayden Brooks	Jefferson
John Willis Campbell	Marshall
Arvey Carnes	Marion
Ernest Carnes	Marion
Elwyn Allen Cary	Lee
Charles Walter Castleman	Talladega
Frank Gregory Charlton	St. Clair
Frederick Emmet Cooper	Calhoun
Byrne Cross	Hale
Joseph Alpha Cullars	Lee
Clarence Bradford Dawson	Elmore
Robert Dennis	Pike
William Reese Dillard	Georgia
Clyde Augustus Donehoo	Blount
Frances Alexander Duncan	Lee
James Archibald Duncan	Georgia
Arturo E. Elizondo	Mexico
Paul Edward Engle	Jefferson
Charles Maynard Farrow	Tallapoosa
Julius Albert Fincken	South Carolina
Arthur Crawford Foster	Cleburne
Jesus Bartolo Galan	Mexico
David Adolphus Gammage	Barbour
Condie Pugh Gaston	Wilcox
Daniel DeKalb Gibson	Clay
Charles Hereford Gilmour	Jefferson
Wilmer Eugene Hall	Morgan
Alfred Lee Harrell, Jr.	Chambers
Cosette Woodley Harrison	Montgomery
Franklin Augustus Hart	Montgomery
Crawford Buchanan Hawkins	Mississippi
Fred Hollis Haynie	Lee
James Thomas High	Marshall
Kirk Theron Holley	Marion
Marshall Gilman Horton	Lee
Walter Lucian Howard	Marshall
Robert Maull Howe	Lee
Clarke Upham Irvine	Mobile

Robert Brice Johnston	South Carolina
Thomas McDonald Jones	Coosa
John Moses Keith	Lee
Lee Eugene Kimball	Lee
Fabius Henry Kohloss	North Carolina
Robert William Lawton	Florida
Edmund Clark Leach	Tallapoosa
Wilbur Fisk Littleton	Florida
William Charles Louisell	Mobile
Daniel Hugh McEachern	South Carolina
Ellison Smyth McKissick	South Carolina
Clyde Fuller McLendon	Montgomery
Homer Hosea Ballou Mask	Lee
Joel Philip Melvin	Tennessee
James Foy Middlebrooks	Barbour
Robert Forney Middleton	Etowah
Leslie Albert Miller	Walker
Jay Millican	Marion
Carl Dent Montgomery	West Virginia
Charles Fletcher Moreland	Texas
Lorenzo Daniel Morgan	Dallas
James McCoy Oliver	Tallapoosa
John Boyd Overstreet	Kentucky
Lex Sneed Owens	Pike
Robert Jemison Owens	Hale
George Allen Patterson	Mobile
Leonard Graham Pearce	Autauga
Millard Hosmer Pearson	Randolph
Jack Noble Peebles	Montgomery
Pierce R. V. Pettis	Clarke
Myrt Warren Pouncey	Escambia
Nelson Wilmer Proctor, Jr.	Jefferson
Hamilton Manoah Robertson	Tennessee
Thomas Orlando Robertson	Georgia
William Gregg Robins	Wilcox
Henry William Robinson	Conecuh
Billy Glenn Rushing	Escambia
Hardy Booker Sandlin	Marion
Frederick Hart Savage, Jr.	Wilcox
Warren Noble Scoville	South Carolina
Albert Vertner Sevier	Louisiana
Cleveland Gillespie Sharp	Morgan
Thomas Ledyard Sharpe	Walker

John Asa Simms	Sumter
Fenton Reid Smith	Marengo
Thomas Chilton Smith	Jefferson
William Jackson Smith	Montgomery
Philip Nicholas Sowell	Escambia
Ransom Davis Spann	Montgomery
Joseph Wheeler Starkey	Colbert
Victoria Steele	Lee
Charles Jefferson Stewart	Bibb
Harry Humphrey Stirling	Jefferson
Louis Edwin Stotlar	Illinois
John Dodson Summers	Lee
Leonidas Polk Sweatt	Jefferson
Hassie Earl Terrell	Lee
James Henry Thigpen	Lowndes
Furman Leffell Tucker	South Carolina
Arthur Pearce Turner	Colbert
Homer Heard Turner	Colbert
Ira Davis Vail	Greene
Albert Weaver	Escambia
Felix Branyon White	Marion
William Lemuel White	Marion
Robertson Wilkins	Jefferson
Frank Whitaker Wilmore	Lee
Eugene Hewitt Wilson	Blount
Joseph Paullyn Wilson	Pike
Gautier Conde Yancey	Macon
Oliver Eubert Young	Choctaw

JUNIOR CLASS

Robert Lee Adams	Lee
Saul Perry Adelson	Jefferson
James Warren Andrews	Montgomery
John Gill Anderson, Jr.	Tennessee
Hayne Coker Appleton	DeKalb
John Robert Argo	Coosa
John Dunklin Ashcraft	Lauderdale
Richmond Young Bailey	Chambers
John Tonice Belue	Lauderdale
Frank Hardie Bessellieu	Georgia
George Woodbury Farrar Bibb	Texas
Wyly McGehee Billing	Montgomery
Roger McIver Bostick	Mississippi

Thomas Massie Boyd	Texas
James Rosby Brown	Florida
Joseph Davenport Browne, Jr.	Tennessee
Joseph Elliott Bumby	Jefferson
James William Burgin	Jefferson
William Alexander Burns, Jr.	Talladega
Green Berry Bush, Jr.	Choctaw
Elliott Benjamin Calloway	Montgomery
Robert Emmett Cammack	Clarke
Robert Ezekiel Campbell	Sumter
Preston Holcomb Cannady	Clarke
Wilmer Huxley Carter	Florida
Kenneth Gladstone Caughman	South Carolina
Thomas Holmes Chapman	Dallas
Thomas William Clift	Madison
George Roy Corcoran	Russell
William Davis Crawford	Macon
Samuel Neil Crosby	Baldwin
Richard Henry Cunningham	Choctaw
William Velpeau Curtis	Lee
Berrien Walker Davis	Georgia
Lee Irwin Davis	Mobile
Posey Oliver Davis	Limestone
William Theodore Davidson	Georgia
Leo Donovan	Dallas
Vernon James Douglass	Jefferson
Ambrose Camp Duggar	Lee
Perry Jackson Edwards	Morgan
Herbert Lee Evans	Hale
Harry Gordon Farris	Etowah
John Charles Ferris	Georgia
Seth Jordan Floyd	Lee
Roland Macon Fricke	Marshall
Loraine Walker Funk	South Carolina
Edward Samuel Gatchell	Dallas
Legare Hairston	Marengo
Arnold Edmund Hayes	Jefferson
Eugene Louis Hilliard	Texas
Elza Bland Holloway	Autauga
Montgomery Lamar Howe	Lee
Andrew Orestes Jackson	Pike
George Andrew Johnston	Jefferson
William Lewis Kellum	Shelby

Henry Lord Page King	Georgia
Glenn Liddell	Wilcox
Paul Sioussat McCormick	Mobile
Laurrie Artemus McCranie	Florida
Alva Pinkston McCrary	Georgia
Clifford Braswell McManus	Georgia
Lawrence Marvin McRae	Chambers
Edmund Mitchell Manning	Chilton
Charles Bartley Martin	Jefferson
Albert Young Masters	St. Clair
George Augustus Miller, Jr.	Florida
James Weston Miller	Louisiana
William Thomas Mills	Jefferson
James Caldwell Mohns	Jefferson
John Daniel Moore	Bullock
Evelyn Moore	Lee
Richard Wells Murphy	Hale
Emile Nelson	Mobile
Cyrus Edson Newman	Coosa
Lucius Rives Owsley	Elmore
Woodie James Pace	Calhoun
William Charles Payne, Jr.	Tennessee
Joseph Bancroft Perry	Jefferson
Wilton Burton Persons	Montgomery
James Goggins Peterson	Coosa
Frank Poole	Butler
Dibble Manly Rickenbaker	South Carolina
James Thomas Roberts	Marshall
Walter Hugh Roberts	Baldwin
Atlee Sample	Morgan
William Clinton Sandlin	Tallapoosa
Otto Meinhardt Schomburg	Georgia
Frederick Gordon Sholes	Jefferson
Ernest Slager	Tennessee
Edward Ward Smith	Lee
Gordon Roysce Smith	Geneva
Jasper Newton Smith, Jr.	Georgia
James Terry Smith	Montgomery
Percy Reynolds Smith	Jefferson
George Henry Stewart	Coosa
Robert Hardaway Strickland	Georgia
Carl Laten Stuckey	Mississippi
Francis Marion Taylor	Lee

John Ewing Taylor	Butler
Edwin Adolphus Wagner	Texas
James Hubert Walls	Marshall
George Lawrence Washington	Cuba
Louis Truitt Wells	Pickens
Jesse Jay Williams	Clarke
James David Williford	Lee
Samuel Andrew Wingard	Montgomery
Hamlin Varney Witham	South Dakota
William Wadsworth Wood	Jefferson
John Garland Woodall	Jackson
David A. Woodard	Louisiana

SOPHOMORE CLASS

William Chester Alexander	Russell
Irvin Gravely Ammen	Jefferson
Thomson William Bailey	Jefferson
Harrison Bates	South Carolina
Julian Dumas Beard	Choctaw
Clarence Reneau Beutell	Georgia
Walter Gustavas Bevill	Choctaw
Thomas Wood Blanchard	Jefferson
William Lee Blanton	Florida
Bernard Irwin Bostwick	Georgia
George Randolph Bowling	Tallapoosa
Walter Frederick Bulla	Georgia
Hugh Otis Burgess	Cleburne
Francis William Burns	Clay
John Hosmer Campbell	Clay
Abner Boone Chapman	Covington
James Arthur Chappell	Jefferson
Daniel Wilmer Clark	Geneva
Jackson Lowery Collins	Mississippi
Frank Cook	Wilcox
William Worth Corcoran	Russell
Frank Ellis Cranford	Walker
Mary Glenn Crenshaw	Lee
Alvan Christy Davis	Geneva
Ernest Linwood Deal	Tuscaloosa
Lewis Battle Dean	Tallapoosa
John Andrew Douglas	Mobile
Albert Hugh Dumas	Lee
Thomas Edmund Duncan	Lee

Julius Eagle	Dallas
Annie Lee Edwards	Lee
Harrison Bartow Emerson	Etowah
Louis William Fogarty	Florida
Joseph Marshall Foulks	Mississippi
Elford Bettis Goodlett	Mississippi
William Franklin Green	South Carolina
Joseph Best Grimsley	Georgia
Henry Haight	Jefferson
Edward Beverly Henry	Lee
James Roy Hines	Chambers
Thomas Northen Jarrell	Clay
Leon Ledyard Jeffrey	Wilcox
John William Johnston	Blount
Julius Jones, Jr.	Coosa
George Allard Kaufman	Louisiana
James Marion Kelly, Jr.	Georgia
Admiral Dewey Killgore	Randolph
Edgar Kimball	Lee
William Robert Lassiter	Russell
Roy Conway LeCraw	Georgia
Hester Marion Lewis	Bibb
John Blair McLin	Lee
Albert Cotton McMillan	Russell
Joseph Thomas MacLean	Florida
Neil Miller	Montgomery
Claude Dowling Morris	Chambers
Roy Clarke Oliver	Tallapoosa
Alan Benjamin Pimm	Florida
Wallace Screws Pitts	Montgomery
John Carew Powell	Montgomery
Homer Prendergast	Texas
William Thomason Price	Tuscaloosa
Bryan Pritchett	Clarke
James Frederick Pruett	Russell
Joe Posey Robertson	Fayette
Carey Cox Robinson	Lee
Robert Pearson Salter	Greene
Yetta Glenn Samford	Montgomery
Bradley Johnson Saunders, Jr.	Jefferson
John Hadley Scott	Tennessee
Edward Noble Scoville, Jr.	South Carolina
Harry Berry Seybt	South Carolina

John Parker Shaffer	Tallapoosa
Sylvester Guinn Sharit	Jefferson
Wilbur Thomas Shinholser	Georgia
Enoch Judge Sims	Russell
Augustus Hoke Sloan	South Carolina
Harry Peckham Sparkes	Jefferson
William Augustus Stickney	Calhoun
Eunice Rebecca Stodghill	Lee
Philip Avary Terrell	Lee
Richard Hartwell Thach	Lee
Raymond Ewing Thagard	Crenshaw
James Andrew Thigpen	Lee
Edwin Leon Thomas	Georgia
Robert Lyle Thompson	Jefferson
Caxton Harold Tichenor	Calhoun
George Samuel Ticknor	Georgia
Henry Phillips Trawick	Lee
Conrad Grey Wall	Walker
John Meriwether Ward	Greene
Lamar Mims Ware	Georgia
Harold Smith Watkins	South Carolina
James Withrow Webb	Tuscaloosa
Leonard Lee Welch	Randolph
Newell Browne Wentworth	Mexico
Lupton Allemong Wilkinson	Jefferson
Gilmore Clark Williams	Cullman
Wheeler Williams, Jr.	Russell
Shu Min Wong	China
Harry Harper Woolridge	Barbour
Barbara Wright	Lee

FRESHMAN CLASS

William Wallace Allen	Florida
James Andrew	Georgia
Jerome Cochran Ard	Dale
Cyrus Andrew Ashcraft	Lauderdale
Richard Braxton Ashe	Colbert
William King Askew	Marengo
Earl Cranston Atkins	Cleburne
John Willis Barnes, Jr.	Autauga
Carl Lee Beall	Crenshaw
Walter Steele Black	Limestone
Madison LeRoy Bonner	Clay

Thomas Herbert Bonner	Clay
Walter Allen Bonney	Clarke
Richard Courtlandt Bradford	Cherokee
Robert Emmett Britnell	Franklin
Lyle Brown	Choctaw
Miriam Brewer Brown	Montgomery
Frate Bull	Marion
Jesse Samuel Burbage	Jefferson
Guy Olney Burns	Lauderdale
Francis Ward Burts	Georgia
Charles Cleveland Bush	Talladega
Colonel Richard Carnes	Marion
Roy Gatman Carpenter	Marion
Harry Montagnier Chaddock	Madison
Horace Lindsay Cooke	Jefferson
Donald McCall Davis	Georgia
John Stephen Neal Davis, Jr.	Georgia
Ralph Emerson Davis	Georgia
Charles Leonard Dill	Madison
Elmer Odell Duffey	Jefferson
Yndalicio A. Elizondo	Mexico
Walter Benedict Erickson	Mobile
McKendree Heard Floyd	Lee
Gordon Green Ford	Marion
James Thomas Fowler	Elmore
James Tarver French	Pike
James Leonard Garthright	Autauga
Ernest Irving Graham	Lawrence
Benjamin Francis Grasser	Louisiana
Jeptha V. Greer	Perry
Horace Vernard Grimes	Texas
William Arnold Guess	Mississippi
James Richmond Hall, Jr.	Tallapoosa
Joseph Henry Hamilton	Jefferson
B. H. Haynes, Jr.	Clay
Harold Herzberg	Georgia
DeWitt Hicks	Tallapoosa
Samuel White Hill	North Carolina
Sydney Bowie Hooper	Marshall
Henry Harris House	Etowah
William John Howard	Montgomery
John Thomas Hudson, Jr.	Tennessee
Charles L. Isbell	DeKalb

William Jesse Isbell	DeKalb
David Charles Jimmerson	Lee
Elizabeth Johnson	Lee
Thomas Jordan	Marshall
Frank Joseph Kelly	Georgia
Albert Johnson Kirby	Jackson
Augustus Theodore Levie	Coosa
Will Lithgow Liddell	Wilcox
Andrew Dowdell Lipscomb	Lee
Richard Rose McAdory	Jefferson
Walter Littleton McArthur	Geneva
Leslie Bateson McCoy	Escambia
John Lee McFarlin, Jr.	Florida
William Cook McKay	Montgomery
Thomas Turner McLemore	Jefferson
Oscar Lee McMurray	Franklin
John Catlett Martin, Jr.	Georgia
James Hunter Martin	Limestone
Oscar LaFayette Martin, Jr.,	South Carolina
Phares Wood Matthews	Jefferson
James Belser Mayes, Jr.	Georgia
George Rufus Mays	Marion
Robert Lee Miller	Walker
William Franklin Morton	Dale
Frederick Martin Mullino	Georgia
Olin Cake Newell	Tallapoosa
Roy Albert Newman	Georgia
Philip Lesley Nichols	Wisconsin
Herbert Belmont Pearson	Randolph
Clyde Houston Phillips	Madison
Ellison Avery Phillips	Clay
Herman Shelby Price	Madison
Hubert Balshaw Rigby	Georgia
Hickman Riley	Coffee
Walter Heard Roberts	Georgia
William Johnston Ross	Calhoun
Nora Letitia Rothrock	Jefferson
Emory Echols Ruffin	Shelby
Benedict Francis Sapienza	Jefferson
Dudley Dunn Saunders, Jr.	Lawrence
William B. Saunders	Mississippi
Abb LLewellyn Scarbrough	Calhoun
Otto Henry Schultz, Jr.	Jefferson

John Andrew Shealy	Louisiana
Albert Edward Sheridan	Georgia
James Edgar Shotts	Marion
William Clem Sills	Wilcox
Frank King Simmons	Florida
John Marion Sparrow	Jefferson
Jason Weldon Spencer	Florida
James Lee Steenhuis	Jefferson
Hugh Jackson Steverson	Tallapoosa
William Matthew Stewart	Jefferson
Barckley Augustus Storey	Talladega
Aubie Casey Strickland	Covington
John Allen Strozier	Georgia
William Woodward Sullivan, Jr.	South Carolina
John Fonville Taylor	Jefferson
Herbert Wright Thomason	Lee
John Earle Thomason	Lamar
Junie Marcus Thomason	Lamar
William Freeman Townsend	North Carolina
Leo Tsiang	China
Lovell Lack Turley	Missouri
David Broome Van Pelt	Talladega
James Fielding Vaughan	Mobile
Jesse Jordan Warren	Montgomery
Coleman Holloway Watson	Jefferson
John Harrison Watson	Lee
Laura Watt	Lee
George Egbert Weber, Jr.	Lee
Edwin Pierce Whitson	Mississippi
Edward Clarke Whitfield	Kentucky
Earl DeWitt Williams	Houston
Charles Eddie Wilson	Marshall
James Henry Witherington	Conecuh
William Herman Withington	Jefferson
Neel Samuel Yent	Florida

DEPARTMENT OF PHARMACY.

FOUR-YEAR COURSE

GRADUATE

Emery Tyler Motley	Randolph

SENIOR CLASS

Samuel Faucett Anders	Tuscaloosa
James Foy Middlebrooks	Barbour
John Dodson Summers	Lee
Gautier Conde Yancey	Macon

JUNIOR CLASS

John Robert Argo	Coosa
Preston Holcomb Cannady	Clarke
Thomas William Clift	Madison
Montgomery Lamar Howe	Lee
William Lewis Kellum	Shelby
Albert Young Masters	St. Clair
Frank Poole	Butler
James Hubert Walls	Marshall

TWO-YEAR COURSE

GRADUATE

Loather Guy Webb	Calhoun

SECOND YEAR

Cecil Charles Bean	Cleburne
Jesse Jared Coleman	Escambia
Simpson Wright Day	Morgan
James Shields Gaskell	Autauga
Homer Samuel Gentry	Bibb
Hoyt Greer	Cleburne
Charles Archibald Harris	Clarke
Simon Mathew Jones	Barbour
Edwin Lee McMillan	Wilcox
Thomas Richard Nash	Shelby
Vann Lindley Spruiell	Jefferson
Ira Junius Wiggins	Monroe

FIRST YEAR

Troy Lawless Carter	Perry
Jeffries Nathaniel Dubberly	Macon
Merritt Knight	Wilcox
Osis Columbus LaGrone	Dallas

John Elijah Norman	Lowndes
Jesse Ellis Peck, Jr.	Tennessee
Harry Martin Pippin	Dale
Reuben Jackson Plant	Tallapoosa
Evan Arthur Rogers, Jr.	Etowah
Carl Vernon Tanner	Mobile

COLLEGE OF VETERINARY MEDICINE AND SURGERY

GRADUATE

Richard Irvin Kearley	Monroe

THIRD YEAR

Godfrey Charles Bevan	Jefferson
Leon J. Bonner	Clay
Sanford Gollie Carter	Randolph
Issachar Grady Gauntt	Tallapoosa
Travis Branch Gissendanner	Dale
Thomas Blake Howle	Calhoun
George Douglas Ingram	Lee
Robert Morgan Lambert	Monroe
Herbert Bryan Nixon	Calhoun
Guy Maxey Parrish	Lee
Irby Rheuel Pollard	Crenshaw
Wade Hampton Reinhardt	North Carolina
William Simp Seibold	Marshall
Roy Felton South	Blount
Frederick Steele	Lee
Redding Stancell Sugg	North Carolina
Charles Thigpen	Lowndes
Marvin William Williams	Lee
Vincent Brown Wright	South Carolina

SECOND YEAR

Roy Avant	Coosa
James Wyatt Boylston	South Carolina
George Lloyd Breeden	Dallas
Ernest William Bryan	Lee
Forrest Eugene Butler	Crenshaw
Elmer Bernard Campbell	Marshall
Irwin Roland Cooper	Marengo
Robert Alvin Dean	Tallapoosa
Archie Lee Faulk	Geneva
Legrand Jones Hargett	Lee

Alto Lee Johnston	Pike
Joseph Earnest Kendrick	Dallas
Edwin D. King, Jr.	Wilcox
Samuel Marshall Major	South Carolina
Samuel Jones Rayfield	Talladega
Richard Kinion Roberson	St. Clair
Walter Stancel Robertson	Tennessee
Willis Charles Roycroft	Mobile
George Lewis Staples	Calhoun
George Malcolm Steed	Wilcox
George Ellis Taylor	Jefferson
Clark Hudson Watkins	Georgia
Thomas Mitchell White	Fayette
Edgar Eldred Williams	Elmore

FIRST YEAR

Dee Lloyd Allen	Sumter
William Elmer Bachelor	Elmore
Theodore Luther Burris	South Carolina
William Elza Carlisle	Macon
Hosmer LaFayette Farr	Jefferson
Thaddeus Lamar Glenn	South Carolina
Thaddeus Henry Ingram	Lee
Byron Newman Lauderdale	Coosa
Merid Kendrick Monk	Barbour
William Lonnie Parrish	Chilton
Staton Possien	Baldwin
Walter James Schimmel	Jefferson

IRREGULAR STUDENTS.

Charles Ray Adams	Dallas
Roe Ballou	Marengo
Warren Asa Candler	Florida
John C. Freeland, Jr.	Louisiana
Leonard Johnson Hill	Calhoun
Carthledge Layphett Huey	Jefferson
Burrel M. Johnson	Marengo
John Smith Kamper	Sumter
Harmon King Law	Pike
Clayton Varnel Moseley	Clarke
William Thigpen	Lee
Charles Richard Waters	Clay
Edward Hunter Welles	Tennessee

TWO-YEAR COURSE IN MECHANIC ARTS

Forest Randle Birchfield	Jefferson
Gurley Everett Burgin	Jefferson
Charles Brandon Crow	Florida
Herschel Daniel	Georgia
Bernard Douglass	Crenshaw
Grady Willis Fountain	Clay
Walter Elbert Harrell	Lowndes
Samuel Robert Huey	Jefferson
Milton Leander Kirkpatrick	Montgomery
Henry Hayes Lamar	Lee
Robert Lapsley	Jefferson
John Cater Lawton	Florida
John Bannister Leek	Etowah
Joseph Lake Littlejohn	Texas
Oliver Norflet Massengale	Elmore
James Clarke Meredith	Calhoun
Gordon Wright Morton	Lee
George Lee Nettles	Monroe
John Albert Peterson	Coosa
Roy Pinkston	Georgia
Belton Hall Possien	Baldwin
John Elias Ried	Tuscaloosa
James L. Rouse	Elmore
Eldridge Remley Speight	Clay
Penniman Marvin Williams	Lowndes

TWO-YEAR COURSE IN APPLIED ELECTRICITY

SECOND YEAR

Robert Jennings Booth	Escambia
John Wood Collins	Marengo
Jesse Wallace Drake	Lee
Duncan Lawson Houser	Jefferson
John Oden Luttrell	Escambia
William Edgar Rush	Macon
James Newton Smith	Bibb
Roy Emil Thomas	Montgomery
Robert Nelson White	Montgomery

FIRST YEAR

Charles Benton Barnett	Mobile
Lowery Pelham Gillespie	Marshall
Adolphus Alexander Hale	Sumter

William Caesar Hearn	Macon
Charles Smith Henagan	Sumter
William Schloss Jacobs	Randolph
Neal Corbly Johnson	Colbert
Cecil Lamb	Florida
Peter Kuhl Martin	Georgia
James Gay Nall	Jefferson
Forest Edgar Nichols	Montgomery
Paul Campbell Reppard	Georgia
Wilson Roby	Montgomery
Willard Lamont Stevens	Mississippi
Archibald Strength	Escambia
Gayle Borden Williams	Mississippi

TWO-YEAR COURSE IN AGRICULTURE.

SECOND YEAR

James Fell Cameron	Greene
Benjamin Wood Davies	Hale
George Blakey Echols	Madison
Cecil Marion Forbes	Jefferson
Edward Frazier Gresham	Autauga
William Edward McWilliams, Jr.	Jefferson
Peyton Norvell, Jr.	Walker
Edmond Webb Reeder	Lee
Ralph Bernard Reeves	Mobile
Clinton Dodson Stovall	Walker

FIRST YEAR

Houston Davidson Alexander	Dallas
Joseph Virginius Allen, Jr.	Jefferson
Robert Haywood Barnes	Greene
James Sheridan Bartee	Mobile
Ralph Carl Blach	Jefferson
George Edward Bryant	Baldwin
George LaFayette Cather	Talladega
Walter P. Crawford	Marengo
Robert Cecil Floyd	Lee
Noah Alonzo Gewin	Hale
Wilmer Grigg	Montgomery
Walter Clinton Hyde	Colbert
Francis Constantine Ingram	Calhoun
Henry B. Ingram	Calhoun
Madison Jones, Jr.	Hale

Starr Kealhofer	Jefferson
Calvin Wentworth McFerran, Jr.	Kentucky
Edward Penn McGee	Tuscaloosa
George Ernest McIver	Georgia
Raymond Lacy McPhaul	Jefferson
Marcus Gatewood Milligan	Cleburne
Jep Edward Moody	Jackson
John Herbert Murray	Escambia
William Albert Neal	Jefferson
James Morris Peters	Talladega
Leo Robert Roby	Mobile
Paul Whiting Saffold	Montgomery
Curtis E. Snead, Jr.	Etowah
Hess George Snodgrass	Jackson
Steele Alvis Spencer	Hale
Charles Clifford Street	Baldwin
Cam Maclin Tally	Jackson
Dewey Elbridge Tanner	Mobile
Jerome Alexander Vandiver	Missouri
Daniel Edgbert Vines	Jefferson
Robert Newman White	DeKalb
Allen Whitfield Wooten	Marengo
Edward Reuben Wren	Talladega

IRREGULAR STUDENTS.

Frederick Theodore Agricola	Etowah
Carl Cofield Amerson	Lee
Glenn Durwood Atkins	Lamar
Reul Ernest Baker	Jefferson
Paul Rubens Bidez	Georgia
Herman West Bingham	Madison
Milton Sprott Brislin	Dallas
Brisbane Hanks Brown	Texas
James Claude Brown	Jefferson
Giles Homer Carlovitz	Mississippi
James Christopher Carr	Choctaw
Jack Silas Case	Butler
Edwin Early Clements	Lee
William Dewitt Dillard	Madison
David Merrick Dowdell	Lee
Margaret Louise Duggar	Lee
David Malphren Enslen	Elmore
Ehrman Thrasher Enslen	Elmore

George Lavender Ferguson	Georgia
Raymond Franklin Gibson	Georgia
Albert Franklin Gossett, Jr.	Georgia
Zelma Grimes	Butler
William Claude Griswold	Bullock
Wirter Shipp Hackworth	Jackson
Daniel Oliver Hall	Baldwin
Festus Urban Harris	Jefferson
Daniel Andrew Helmich	Jefferson
Perry Anderson Hewitt	Montgomery
James Edwin Hickey, Jr.	Montgomery
Roy Milton House	Calhoun
Joseph William Hudson	Montgomery
Lucius Wiley Johnson	Tuscaloosa
Thomas John Kelly, Jr.	Mobile
Robert Thomas Kernahan	Colbert
John Edward Key	Chambers
Alma Virginia Lamar	Lee
George Lampros	Montgomery
Julian Porter Leonard	Georgia
Jennings Bryan Liles	Escambia
Owen Mahone Liles	Escambia
Frank Corry Lipscomb	Lee
Robert Charles McGuirk	Calhoun
William Franklin McLemore	Talladega
DeWitt Milligan	Montgomery
Frank Phillips Milstead	Tallapoosa
Charles Edmund Monroe	Madison
Elmer Chester Nelson	Jefferson
C. F. Nonnemacher	Calhoun
George Arthur Pfaffman	Washington
Joseph Edward Ponder	Talladega
Luther Hill Randall	Georgia
Clement Ritter	Dallas
James Donnell Russell	Calhoun
Myer Sachar	Henry
Carl Sanders	Georgia
Thomas Jones Sellers	Tallapoosa
Robert Paul Simmons	Dale
Bryan William Smith	Jefferson
Garrard Dent Smith	West Virginia
Jane Smith	Lee
William Stanley Stratford	Montgomery

William Marcus Thigpen	Russell
Priestley Toulmin, Jr.	Jefferson
Robert Lee Trimble	Georgia
William Rufus Turnipseed	Bullock
Francis Bryan Wakefield, Jr.	Florida
Alfred Benjamin Walter	Louisiana
Russell Fleming Walthour	Lee
James Frederic Watson	Jefferson
Ulon Victor Wellons	Georgia
James Wallace Whatley	Lee
Walter Alexander Whatley	Lee
William Warren Wilkerson	Jefferson
Felix Henry Williams	Lee
Robert Fleming Williford	Lee
Paul Lee Woodson	Jefferson
Oscar Bradford Yeatman	Madison
Michael Vernon Zimmerman	Jefferson

SUMMARY

Graduate Students	26
Senior Class	124
Junior Class	111
Sophomore Class	102
Freshman Class	132
Pharmacy	36
Veterinary Medicine	69
Mechanic Arts	25
Two-Year Course in Applied Electricity	25
Two-Year Course in Agriculture	48
Irregular Students	78
	776
Deduct for names counted twice	14
Total	762

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY

English	540	Chemical Laboratory	132
History	368	Chemistry	370
French	36	Agriculture	316
German	59	Animal Husbandry	358
Latin	69	Physics	370
Mental Science	6	Botany	187
Political Economy	95	Entomology	54
Mathematics	440	Zoology	68

Horticulture	117
Forestry	43
Landscape Gardening	12
Geology	74
Civil Engineering	52
Structural Design	36
Electrical Engineering	114
Mechanical Engineer'g	189
Mining Engineering	6
Architecture	22
Machine Design	91
Drawing	223
Descriptive Geometry	79
Mechanic Arts	401
Mineralogy	8
Physiology	120
Veterinary Science	125
Pharmacy	60
Veterinary Medicine	69
Military Department	682
Surveying	145

RESIDENCE BY STATES.

Alabama	600
Georgia	55
South Carolina	23
Florida	21
Mississippi	13
Tennessee	11
Texas	9
Louisiana	8
North Carolina	5
Kentucky	3
Missouri	2
West Virginia	2
Illinois	1
Wisconsin	1
South Dakota	1
Mexico	4
China	2
Cuba	1

MILITARY ORGANIZATION

SESSION 1914-1915.

President,
CHARLES C. THACH.

Commandant,
COL. BENJAMIN S. PATRICK.

Surgeon,
J. H. DRAKE.

Bandmaster,
MAJOR A. L. THOMAS.

Regimental Staff.

Cadet Captain F. L. Tucker, Adjutant.
Cadet Captain J. M. Oliver, Quartermaster.
Cadet Captain A. P. Turner, Commissary.

Regimental Non-Commissioned Staff.

Cadet Sergeant C. E. Newman, Sergeant-Major.
Cadet Sergeant A. O. Jackson, Quartermaster Sergeant.
Cadet Sergeant J. G. Anderson, Color Sergeant.
Cadet Sergeant B. W. Davis, Drum Major.

First Battalion.

Cadet Major D. D. Gibson.
Cadet First Lieutenant P. R. Pettis, Adjutant.
Cadet Sergeant, S. A. Wingard, Sergeant Major.

Cadet Captains.

Company A.	Company B.	Company C.	Company D.
A. Bonds	J. W. Starkey	N. W. Proctor	J. P. Melvin
	Cadet First Lieutenants.		
T. M. Jones	C. M. Farrow W. G. Robins	L. G. Pearce	L. P. Sweatt R. M. Howe
	Cadet First Sergeants.		
V. J. Douglass	P. R. Smith	H. L. P. King	G. R. Corcoran
	Cadet Sergeants.		
J. D. Browne G. H. Stewart J. D. Russell W. A. Burns	W. B. Persons L. T. Wells J. C. Mohns H. G. Farris	A. C. Duggar H. L. Evans A. P. McCrary H. V. Witham	E. S. Gatchell E. M. Manning R. M. Fricke

Cadet Corporals.

J. W. Johnston	G. R. Bowling	R. H. Thach	H. M. Lewis
H. P. Sparkes	J. P. Shaffer	P. A. Terrell	E. L. Deal
A. B. Chapman	A. C. Davis	G. E. Weber	G. C. Williams
T. Jordan	R. M. House	J. R. Hines	C. C. Robinson
	J. C. Powell	R. G. Carpenter	

Second Battalion.

Cadet Major E. A. Allen.

Cadet First Lieutenant C. A. Donehoo, Adjutant.

Cadet Sergeant E. W. Smith, Sergeant Major.

Cadet Captains.

Company E.	Company F.	Company G.	Company H.
H. H. Turner	C. U. Irvine	C. F. Moreland	W. F. Littleton

Cadet First Lieutenants.

E. S. McKissick	J. A. Duncan	J. P. Wilson	J. M. Beutell
M. W. Pouncey	J. A. Cullars	F. B. White	L. A. Miller

Cadet First Sergeants.

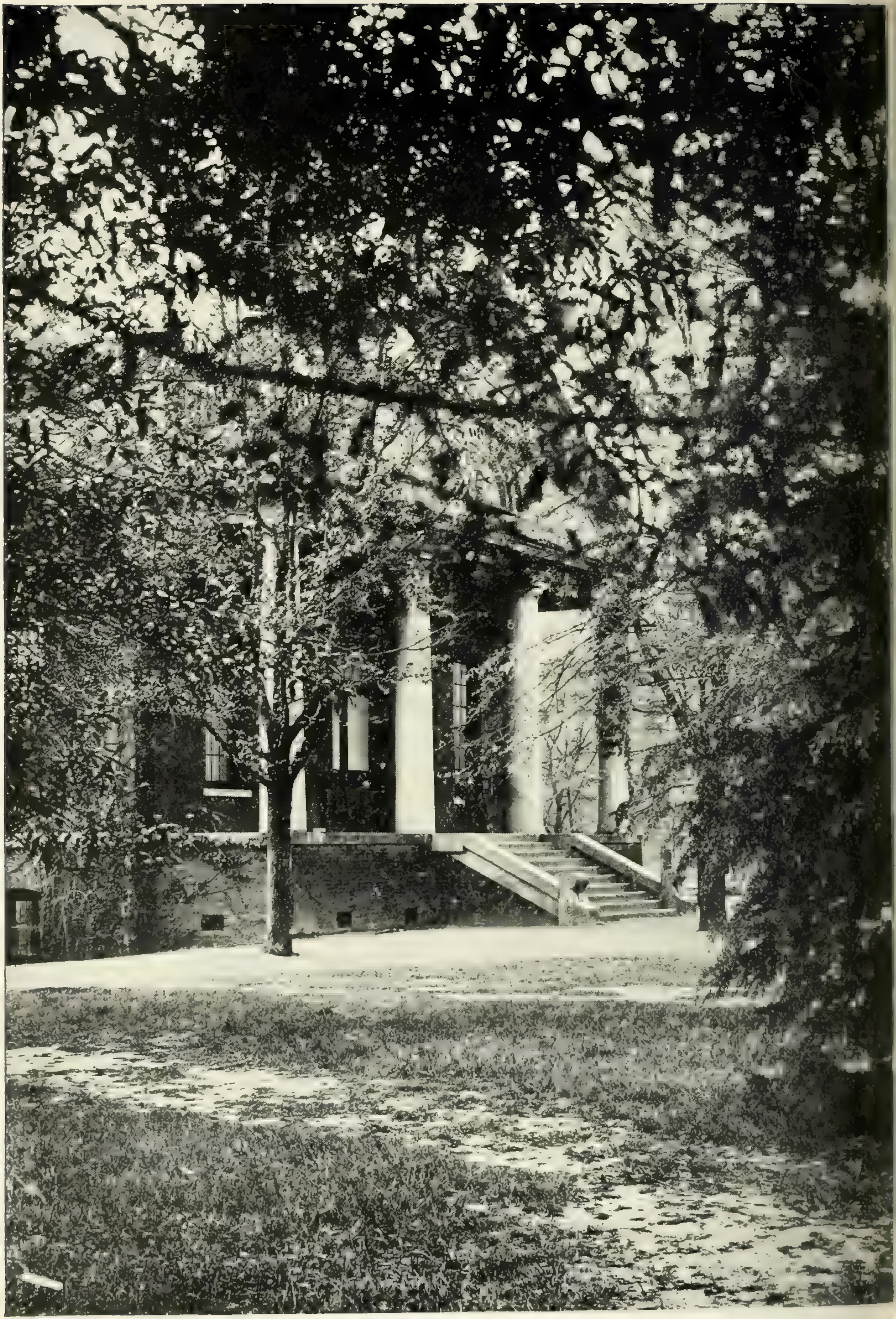
W. M. Billing	A. E. Hayes	L. I. Davis	W. C. Payne

Cadet Sergeants.

J. W. Andrews	C. B. McManus	J. D. Ashcraft	G. Liddell
P. J. Edwards	W. H. Carter	J. G. Woodall	L. R. Owsley
W. D. Crawford	R. E. Cammack	G. R. Smith	E. Slager
J. T. Belue	W. H. Roberts	H. C. Appleton	O.M. Schombur

Cadet Corporals.

W. T. Shinholser	F. K. Simmons	L. M. Ware	H. Bates
Y. G. Samford	L. W. Fogarty	R. P. Salter	W. L. Blanton
C. L. Isbell	R. C. LeCraw	J. M. Ward	H. Prendergast
C. R. Carnes	J. P. Robertson	W. R. Lassiter	F. W. Burns



Langdon Hall

THE CADET BAND

Session 1914-15.

A. L. THOMAS, Bandmaster.

P. R. BIDEZ, Assistant.

Graduate Members.

S. J. Smith, H. M. Martin, J. J. Haralson.

Military Officers.

J. A. Simms	Cadet Captain
W. E. Hall	Cadet First Lieutenant
L. A. McCranie	Cadet Sergeant
B. W. Davis, Drum Major	Cadet Sergeant
J. M. Kelly	Cadet Corporal

Musicians.

L. A. McCranie, Cornet.
W. T. Mills, Cornet.
R. A. Newman, Cornet.
E. C. Whitfield, Cornet.
E. D. Williams, Cornet.
J. A. Simms, Trombone.
J. C. Lawton, Trombone.
R. P. Simmons, Trombone.
W. E. Hall, Baritone.
W. M. Stewart, Baritone.
B. H. Possein, Saxophone.
F. H. Haynie, Tuba.
F. M. Taylor, Snare Drum.
C. E. Monroe, Bass Drum.
P. R. Bidez, Clarinet.
S. J. Smith, Clarinet.
J. J. Haralson, Clarinet.
L. L. Welch, Clarinet.
H. M. Martin, Piccolo.
J. A. Douglas, Piccolo.
D. A. Gammage, Alto.
J. M. Kelly, Alto.
W. S. Hackworth, Alto.

Bugle Corps.

G. L. WASHINGTON, Chief Trumpeter.

T. W. Blanchard, G. A. Miller,
D. M. Rickenbaker.

Cadets of the graduating class who were reported to the Adjutant General, U. S. Army, as having ranked highest in the Military Department:

1889	1890	1891
A. St.C. Dunstan	F. D. Milstead	L. E. Baker
B. H. Crenshaw	J. W. Bivins	C. C. Johnson
A. J. Burr	G. W. Emory	F. J. Bivins

1892
H. F. Dobbin
A. L. Jones
C. L. Brown

1893
Joel Dumas
C. H. Smith
J. F. Webb

1894
C. S. Andrews
P. P. McKeown
R. L. Dorsey

1895
S. L. Coleman
H. H. Smith
L. B. Gammon

1896
A. L. Alexander
W. L. Fleming
W. M. Williams

1897
P. G. Clark
G. M. Holley
G. N. Mitcham

1898
A. H. Clark
A. McB. Ransom
John Haralson

1899
I. F. McDonnell
A. H. Feagin
T. W. Wert

1900
E. M. Mason
H. P. Powell
C. W. Nixon

1901
A. F. Jackson
J. D. Foy
P. S. Haley

1902
W. D. Willis
J. E. D. Yonge
J. B. Garber

1903
H. E. Davis
H. M. Yonge
T. J. Dowdell

1904
J. McDuffie
B. L. Shi
Geo. Dunglinson, Jr.

1905
R. P. Boyd
R. M. McCulloh, Jr.
J. H. Patterson

1906
W. H. Foy
F. H. Mohns
M. A. Frazer

1907
N. B. McLeod
W. L. Purdue
G. F. Lipscomb

1908
S. A. Ellsberry
C. M. Howard
R. H. Liddell

1909
J. W. Powell
S. H. Richardson
T. Beasley

1910
D. M. Clements
C. C. Yonge
J. M. Spearman

1911
J. E. Davis
J. J. Cater
G. Lothrop

1912
S. R. Cruse
C. C. Thach, Jr.
F. L. Jenkins

1913
R. A. McGinty
D. L. Taylor
H. C. Hanlin

1914
R. E. Herring
W. B. Tisdale
E. F. Barry.

REQUIREMENTS FOR ADMISSION

All applicants for admission must present testimonials of good moral character, and those who come from other colleges must bring certificates of honorable discharge or furnish other tesimonials of good moral character.

Students upon their arrival in Auburn should report promptly to the President.

Entrance examinations will begin on Monday, September 6th. These examinations will be required of all students entering college for the first time, except those who bring certificates from accredited high schools or preparatory schools or from reputable colleges or universities.

REGISTRATION.

All students are required to register on the first day of the session and on the opening day after the Christmas vacation. Registration at a later date involves additional administration work to the College and seriously affects the work of the student. An additional fee of $2.00 will be charged for registration after September 11th and January 6th. No exception will be made to this regulation.

All new students, whether applicants for regular or irregular courses, are required to report for classification to the Chairman of the Committee on Entrance Examinations, who will give them cards of admission to the classes to which they are assigned.

ADMISSION TO THE FRESHMAN CLASS.

To enter the freshman class the applicant must be not less than fifteen years of age.

For unconditional admission to any bachelor's course, or to the Veterinary College, a student will be required to present fourteen entrance units.

Students who wish to enter the regular courses and are deficient in entrance requirements may enter and be classified as conditioned students provided their deficiencies do not exceed two units.

For entrance to any of the special courses that do not lead to degrees, applicants must give evidence of satisfactory preparation for pursuing the work as outlined in the catalogue. In accordance with the requirements of the American Conference of Pharmaceutical Faculties, for entrance to the two-year course in pharmacy, leading to the degree of Graduate in Pharmacy, at least one year of high school work is required.

Of the fourteen units required for admission in full standing to the freshman class, seven and a half are prescribed as follows:

In Mathematics	3 ½ units
In English	3 units
In History	1 unit
Total prescribed	7 ½ units

ENTRANCE SUBJECTS.

Credit for admission will be given for any high school subject properly taught.

The principal subjects in which units may be offered for entrance are as follows:

Algebra	1 ½ units
Advanced Arithmetic	½ unit
Plane Geometry	1 unit
Solid Geometry	½ unit
Trigonometry	½ unit
High School Grammar	½ unit
Rhetoric and Composition	1 ½ units
Literature	1 ½ units
Advanced U. S. History	1 unit
Ancient History	1 unit
Mediaeval and Modern History	1 unit
English History	1 unit
Pedagogy	½ unit
Psychology	½ unit
French	1 to 2 units
German	1 to 2 units
Spanish	1 to 2 units
Latin Grammar	1 unit
Caesar	1 unit
Cicero	1 unit
Virgil	1 unit
Greek	1 to 2 units
Commercial Geography	½ unit
Physical Geography	1 unit
Agriculture	½ to 2 units
Zoology	½ to 1 unit
Physiology	½ to 1 unit
Biology	½ to 1 unit
Physics	½ to 1 unit
Chemistry	½ to 2 units
Botany	½ to 1 unit
Civil Government	½ to 1 unit
Shop Work	½ to 2 units
Mechanical Drawing	½ to 2 units
Freehand Drawing	½ to 1 unit
Music	½ to 3 units
Bookkeeping	½ to 1 unit
Stenography and Typewriting	½ to 1 unit
Domestic Science	½ to 2 units

UNIT DEFINED.

A unit is defined as a high school or preparatory course of five periods of forty or forty-five minutes each weekly, throughout the academic year of nine months. In science courses, two laboratory periods are counted as the equivalent of one recitation period. Credits of less than one unit may be granted for courses that do not run full time. No more than four units will be given for one year's work in the high school.

ENTRANCE SUBJECTS WITH DEFINITION OF REQUIREMENTS.

MATHEMATICS.

1. Advanced Arithmetic Equivalent of courses offered in the accredited secondary schools of Alabama.	½unit
2. (a) Algebra to Quadratics	1 unit
(b) Quadratics, binominal theorem, progressions, etc. (equivalent of Wentworth's *Elementary Algebra*)	½unit
3. Plane Geometry	1 unit
4. Solid Geometry	½unit
5. Trigonometry	½unit

It is absolutely essential that students who hope to succeed should be well grounded in arithmetic, algebra and geometry.

A working knowledge of the metric system should also be obtained.

ENGLISH.

1. High School Grammar	½unit
2. Composition and Rhetoric	1½units
3. Literature	1½units

Below will be found two lists of books on which entrance requirements in English for 1915-16 are based, one for careful study and practice in class, the other for general reading, largely out of class. Those included in the list for careful study, the student will be expected to know pretty thoroughly. This part of the examination will be upon subject matter, literary form, and logical structure; and, in addition, the candidate will be required to answer questions involving a fair knowledge of the leading facts in those periods of English literature to which the prescribed work belongs. Those works in the list for reading and practice, the student will not be expected to know minutely, but he will be expected to have a general knowledge of their subject matter and the lives of their authors. The main object in this part of the examination is to test the candidate's ability to use good English.

1. *For Study and Practice*:

Shakespeare's *Macbeth;* Milton's *Lycidas, Comus, L'Allegro* and *Il Peneroso;* Burke's *Speech on Conciliation with America* or Washington's *Farewell Address* and Webster's *First Bunker Hill Oration;* Macaulay's *Life of Johnson* or Carlyle's *Essay on Burns.*

2. *For Reading and Practice*:

Group I. (two to be selected). Shakespeare's *As You Like It, Henry V., Julius Caesar, The Merchant of Venice, Twelfth Night.*

Group II. (one to be selected). Bacon's *Essays;* Bunyan's *Pilgrim's Progress, Part I.;* the *Sir Roger de Coverly Papers* in the *Spectator;* Franklin's *Autobiography.*

Group III. (one to be selected). Chaucer's *Prologue;* Spenser's *Faerie Queen* (selections); Pope's *The Rape of the Lock;* Goldsmith's *The Deserted Village;* Palgrave's *Golden Treasury* (*First Series*) *Books II. and III.,* with special attention to Dryden, Collins, Gray, Cowper, and Burns.

Group IV. (two to be selected). Goldsmith's *The Vicar of Wakefield;* Scott's *Ivanhoe;* Scott's *Quentin Durward;* Hawthorne's *The House of Seven Gables;* Thackeray's *Henry Esmond;* Mrs. Gaskell's *Cranford;* Dicken's *A Tale of Two Cities;* George Eliot's *Silas Marner;* Blackmore's *Lorna Doone.*

Group V. (two to be selected). Irving's *Sketch Book;* Lamb's *Essays of Elia;* DeQuincey's, *Joan of Arc,* and *The English Mail Coach;* Carlyle's *Heroes and Hero Worship;* Emerson's *Essays* (selected); Ruskin's *Sesame and Lilies.*

Group VI. (two to be selected). Coleridge's *Ancient Mariner;* Scott's *Lady of the Lake;* Byron's *Mazeppa,* and *Prisoner of Chillon;* Palgrave's *Golden Treasury* (*First Series*) *Book IV.,* Macaulay's *Lays of Ancient Rome;* Poe's *Poems;* Lowell's *Vision of Sir Launfal;* Arnold's *Sohrab and Rustum;* Longfellow's *Courtship of Miles*

Standish; Tennyson's *Gareth and Lynette, Launcelot and Elaine,* and *The Passing of Arthur;* Browning's *Poems* (selected).

LATIN.

1. Latin Grammar, easy composition and easy reading ------------------- 1 unit
2. Caesar ------------------------------------ 1 unit
   Any four books of the *Gallic War.*
3. Cicero ------------------------------------ 1 unit
   Any six orations.
4. Virgil ------------------------------------ 1 unit
   The first six books of the *Aeneid.*

Equivalents in Nepos, Sallust, Ovid, and other Latin authors may be offered in place of the reading indicated above.

GREEK.

1. Grammar and Composition ---------------- 1 unit
   The common forms, idioms, and constructions, and the general grammatical principles of the Attic Greek prose. Translation into Greek of detached sentences and into English of easy Greek narrative.
2. Xenophon --------------------------------- 1 unit
   The first four books of the *Anabasis.*

GERMAN.

Elementary German -------------------- 1 to 2 units

The examination will be suited to the proficiency of those who have had two years of German in a preparatory school, and will test (a) the candidate's knowledge of the rudiments of German grammar; (b) ability to read easy prose at sight, and (c) to translate simple English sentences into German. The candidate should have read two hundred pages of easy prose.

FRENCH.

Elementary French -------------------- 1 to 2 units

The examination will be suited to the proficiency of those who have had two years in French in a preparatory school, and will include (a) the translation at sight of ordinary nineteenth century prose. (b) the translation from English into French of sentences to test the candidate's familiarity with elementary grammar. The candidate should have read three hundred pages of simple prose.

SPANISH.

1. Elementary Spanish ------------------ 1 to 2 units

The preparation in Spanish should follow the plan outlined for the work in French. The amount of reading prescribed should be about the same.

HISTORY.

1. Ancient History ---------------------------- 1 unit

Greece and Rome should be emphasized. The completion of Myer's *Short History of Ancient Times,* or the equivalent.

2. Mediaeval and Modern History -------------- 1 unit

The completion of Myer's text or the equivalent.

3. History of England ----------------------- 1 unit

The completion of Montgomery's *English History* or the equivalent.

4. History of the United States -------------- 1 unit

A credit of one unit is granted for a high school course requiring one year for completion.

CIVICS.

Civics ------------------------------- ½ to 1 unit

A credit of one unit is granted for high school work in civics requiring one year for completion.

SCIENCE.

1. Botany ------------------------------ ½ to 1 unit

The preparation in botany should include anatomy; morphology; physiology; ecology; the natural history of the plant groups and classification. Considerable time should be given to laboratory and field work, and records of the work should be kept in notebooks.

2. Chemistry .... ½ to 2 units

   The preparation in chemistry should include laboratory work, comprising at least 40 exercises; instruction by lecture and demonstration; and study of a standard text like Smith's Essentials of Chemistry. The laboratory notebook should be kept.

3. Physics .... ½ to 1 unit

   A year's work in physics should include the thorough study of a good text, like Higgin's *Physics*, supplemented by lectures and demonstrations, and by individual laboratory work comprising at least 40 exercises, the results of which should be kept in a notebook.

4. Physical Geography .... ½ to 1 unit

   The preparation should include at least one modern text-book as Maury-Symond's *Physical Geography.*

5. Commercial Geography .... ½ unit

   A credit of ½ unit is granted for a high school course requiring at least one-half year for completion.

6. Physiology .... 1 unit

   Any good high school text.

7. Zoology .... ½ to 1 unit

   One year's work following a good elementary text-book, with at least forty hours of laboratory work and excursions.

8. Agriculture .... ½ to 2 units

   For a credit of one unit the course should have been guided by some good text like Duggar's *Agriculture,* with practical demonstrations and experiments by the student in the school garden or on the farm. Practical experience on the farm will also be counted toward credit, and where this practical experience has extended over two or more years it may be accepted as fulfilling the requirements without the text-book study. Additional credit will be given for more advanced study.

9. Biology ---------------------------------- ½ to 1 unit

One full year's work following a good elementary text-book with at least forty hours of laboratory work and excursions covering the elements of botany and zoology. Notebook with original drawings should be kept.

DRAWING.

Drawing ---------------------------------- ½ to 2 units

For a credit of one unit, a full year's work in freehand or mechanical drawing, including geometrical, plane and solid figures, simple pieces of machinery, and with a fair knowledge of the rules of perspective and light and shade sketching from casts, plants, and other objects. Additional credit will be granted for more advanced work.

PSYCHOLOGY AND PEDAGOGY.

Psychology and Pedagogy ------------------ 1 unit

For credit in either of these subjects, a student must have studied at least a half year in a regular course based on some elementary text like Halleck's *Psychology* and White's *Theory and Practice of Teaching.*

SHOPWORK.

1. Woodwork ---------------------------------- 1 unit

One full year's work of not less than six hours per week in woodworking, including bench work, joining, turning and construction of useful objects.

2. Forge, Foundry, and Machine Work ---- ½ to 3 units

Proficient training in these subjects will be credited according to the time they are systematically followed, two hours of laboratory instruction being counted as one hour of recitation. The student should be familiar with the usual shopwork process and methods of work, and the properties of the materials commonly used in construction.

MUSIC.

1. Music Appreciation ---------------------------1 unit

A general knowledge of the principal musical forms—song, classic dance, fugue, sonata (all movements), and symphony—and of their historical development; and acquaintance with the lives of the great composers and with their compositions. A reasonable familiarity with the more commonly heard works of the best composers as Bach, Handel, Haydn Mozart, Beethoven, Weber, Schubert, Mendelssohn, Chopin, Schumann, Wagner, etc.

2. Harmony -----------------------------------1 unit

The ability to harmonize a single soprano of not fewer than eight measures in four vocal parts, involving, in major and minor modes, diatonic chords of the seventh and modulation, transient or complete, to next-related keys; the ability to analyze (by indicating the keys, the chords, and the various non-harmonic tones employed), a simple piece of music involving altered chords, passing tones, suspensions, appogiaturas, and pedal point.

3. Musical Performance -------------------------1 unit

The ability to play acceptably at sight the simpler pieces of the classic composers, on the piano, organ, violin, or voice. The required technique should be the result of at least two year's instruction under a competent teacher.

DOMESTIC SCIENCE.

Domestic Science ------------------------1 to 2 units

One full year's work of not less than six hours per week in cookery, sewing, fitting, or other work usually included in high school courses in this subject.

BOOKKEEPING.

Bookkeeping ---------------------------½ to 1 unit

Theory and practice involved in the historical entry, journalizing, special column, the balance sheet, and the customs and laws governing invoices, notes, drafts, bills of lading, receipts, etc. Applicants must be prepared to write out any of the forms involved in the above requirements.

STENOGRAPHY AND TYPEWRITING.

Stenography and Typewriting ....½ to 1 unit

The ability to write from dictation at the rate of forty words a minute, and to transcribe same on the typewriter at the rate of thirty words per minute. Spelling and punctuation must be up to a grade of ninety.

ADMISSION ON CERTIFICATE.

Applicants will be admitted without examination on presenting a certificate from any of the *Certificate Schools* named herein.

The following educational institutions having made application to be correlated to this college and having presented an approved course of study, are hereby declared to be *Certificate Schools*, and are granted the privilege set forth in the following:

"Students from certificate schools will be admitted to the Freshman class *without examination* upon the certificate of the president or principal, showing definitely that such students have completed satisfactorily all the studies required for admission, as stated in the catalogue, and are otherwise admissable. High school credits will not be accepted as a substitute for any work of the freshman class."

District Agricultural Schools.

First, Jackson	J. J. Moore
Second, Evergreen	W. C. Blasingame
Third, Abbeville	D. W. McLean
Fourth, Sylacauga	J. E. Cheatham
Fifth, Wetumpka	J. M. Crowell
Sixth, Hamilton	H. O. Sargent
Seventh, Albertville	S. L. Gipson
Eighth, Athens	J. M. Atkinson
Ninth, Blountsville	W. B. Farrar
Northeast Alabama Agricultural and Industrial Institute, Lineville	Brant La Boone

County High Schools.

Autauga, Prattville	H. T. Wallace
Barbour, Clio	A. C. Anderson
Bibb, Centreville	J. W. Watson
Blount, Oneonta	T. C. Moore
Calhoun, Oxford	R. S. King
Chambers, Milltown	J. D. Pepper
Cherokee, Center	J. A. Johnson
Choctaw, Butler	Zack Rogers
Clarke, Grove Hill	M. L. Orr
Clay, Ashland	J. F. Knight
Cleburne, Heflin	J. K. Hunt
Coffee, Enterprise	W. I. Pittman
Colbert, Leighton	C. V. Thompson
Conecuh, Castleberry	Sarah E. Luther
Coosa, Rockford	A. R. Jones
Covington, Florala	H. A. Pettus, Jr.
Cullman, Cullman	W. L. Hicks
Dale, Ozark	L. K. Benson
Dallas, Plantersville	J. L. Moulder
DeKalb, Ft. Payne	N. J. Callan
Elmore, Eclectic	J. J. Yarbrough
Escambia, Atmore	C. A. Peavey
Etowah, Attalla	J. R. Kimbrough
Franklin, Russellville	E. T. Bolding
Geneva, Hartford	B. H. Boyd
Henry, Headland	W. S. Sconyers
Houston, Columbia	C. W. Johnson
Jackson, Scottsboro	R. P. Wills
Lamar, Vernon	E. L. Williamson
Lauderdale, Rogersville	W. L. Davis
Lawrence, Moulton	Earl M. Hodson
Lee, Auburn	C. G. Sharp
Limestone, Elkmont	E. B. Baxter
Lowndes, Ft. Deposit	E. H. Turner
Macon, Notasulga	H. C. McDonald
Madison, Gurley	W. T. Stephens
Marengo, Thomaston	J. L. Gibson
Marion, Guin	J. B. Clark
Marshall, Guntersville	Oscar Horton
Monroe, Monroeville	George A. Harris
Morgan, Hartselle	J. H. Riddle
Perry, Marion	J. A. York

Pickens, Reform	J. E. Hendley
Pike, Brundidge	S. B. Gibson
Randolph, Wedowee	R. L. Burks
Shelby, Columbiana	L. Leftwich
St. Clair, Odenville	J. O. Sturdivant
Sumter, York	W. F. Osburn
Talladega, Lincoln	J. A. Morgan
Tallapoosa, Dadeville	J. A. Parrish
Walker, Jasper	J. A. Moore
Wilcox, Camden	Claude Hardy
Winston, Double Springs	L. J. Howell

Other High Schools.

Alexander City High School, Alexander City	J. M. Pearson
Andalusia High School, Andalusia	L. E. Brown
Anniston High School, Anniston	D. R. Murphey
Green University School, Athens	W. K. Green
Barnes' School, Montgomery	E. R. Barnes
Banks Stephens' Institute, Forsyth, Ga.	J. R. Campbell
Baptist Collegiate Institute, Newton	A. W. Tate
Bay Minette High School, Bay Minette	S. M. Tharpe
Berry School, Rome, Ga.	R. H. Adams
Bessemer High School, Bessemer	A. A. Persons
Central High School, Birmingham	C. A. Brown
High School, Boaz	J. C. McAuley
Snead Seminary, Boaz	L. F. Cooley
Brewton High School, Brewton	W. L. Porter
High School, Camp Hill	C. C. Moseley
Industrial Institute, Camp Hill	L. Ward
Carrolton High School, Carrolton, Ga.	H. B. Adams
High School, Clanton	J. J. Pickens
High School, Collinsville	I. J. McCall
Cordova High School, Cordova	J. W. Smith
High School, Cuba	M. E. Head
Normal School, Daphne	B. B. Baker
Decatur High School, Decatur	J. M. Collier
Dothan High School, Dothan	J. V. Brown
Demopolis High School, Demopolis	K. G. Hoover
Edgar's Echool for Boys, Montgomery	R. B. Edgar
High School, Elba	W. J. Steele
High School, Ensley	R. L. Dimmitt
Eufaula High School, Eufaula	H. L. Upshaw
Eutaw High School, Eutaw	A. F. Jackson

Georgia Military Academy, College Park, Ga.	J. C. Woodward
Gadsden High School, Gadsden	W. C. Griggs
Geneva High School, Geneva	R. E. Little
Georgiana High School, Georgiana	W. P. Lunsford
High School, Gordo	W. T. Snoddy
Greenville High School, Greenville	C. B. Gamble
Haleyville High School, Haleyville	E. M. Meadows
Healing Springs Industrial Academy, Healing Springs	C. C. Smith
Goodrich School, Huntsville	J. C. Goodrich
Huntsville High School, Huntsville	R. C. Johnston
LaFayette High School, LaFayette	F. T. Appleby
Linden High School, Linden	J. J. Holladay
High School, Louisville	V. V. Norton
Luverne High School, Luverne	W. G. Cameron
High School, Madison	T. G. Riddle
Central High School, Memphis	N. M. Williams
Mobile High School, Mobile	S. S. Murphy
Mobile Military Institute, Mobile	T. A. Taylor
University Military School, Mobile	J. T. Wright
Sidney Lanier High School, Montgomery	C. L. Floyd
Normal School, Moundville	G. A. Young
New Decatur High School, New Decatur	Mrs. W. F. Jones
Noble Institute, Anniston	Rev. James P. Glass
O'Neal High School, Cordele, Ga.	J. Scarboro
High School, Opelika	S. O. White
Opp High School, Opp	J. F. Scofield
Palmetto High School, Palmetto, Ga.	L. A. Page
High School, Pine Apple	N. W. Henson
Roanoke High School, Roanoke	L. L. Vann
Selma High School, Selma	A. F. Harman
Slocomb High School, Slocomb	E. J. Laney
Talladega High School, Talladega	D. A. McNeill
Thomasville High School, Thomasville	H. M. Morrow
Thorsby Institute, Thorsby	S. H. Herbert
Unity-Chilton Baptist High School, Thorsby	J. A. Pool
Tuscumbia High School, Tuscumbia	J. F. Collins
Tuskegee High School, Tuskegee	R. E. Thompson
High School, Uniontown	W. P. Champion
University School, Montgomery	J. M. Starke
University High School, Birmingham	J. J. White
Union Springs High School, Union Springs	E. S. Pugh

ADMISSION OF YOUNG WOMEN.

Young women of mature mind and character, who are at least seventeen years of age, will be admitted. Upon the approval of the faculty, applicants may be admitted at an age less than seventeen years if a resident of Auburn will act as guardian.

The only conditions imposed will be that they engage in earnest study and attend the exercises regularly. They will board in town with private families and will attend college only at the hours of their exercises.

NUMBER OF EXERCISES REQUIRED.

All students are required to have *not less than fifteen* recitations per week, or the equivalent, in addition to the exercises in laboratory work, drawing, and military drill. These additional exercises occupy not less than twelve hours per week and in all give twenty-seven to thirty hours per week required in college exercises.

SPECIAL AND IRREGULAR STUDENTS.

Those students who are not able to meet the regular entrance requirements may be admitted to special courses in agriculture, architecture, engineering, chemistry, pharmacy, etc., and will be classified as special or irregular students, provided they are prepared to do satisfactory work in the subjects which they desire to take.

The privilege of taking irregular courses will be granted only to those students who are of age or to those whom for special reasons the faculty may grant permission. Students who are not of age will not be permitted to enter a special or irregular course without the written permission of parent or guardian.

A student to whom this privilege has been granted will be assigned to some member of the faculty who will act as his adviser in regard to his work. The professor in charge of a department will decide whether a special student is prepared for admission to his class.

Those students who are candidates for a degree, but who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies.

REMOVING CONDITIONS.

At the beginning of each term examinations will be given to those students who wish to remove entrance conditions.

CHANGES IN COURSE.

Special and irregular students may be transferred to any regular course by presenting satisfactory entrance requirements and by standing satisfactory examinations on all the work which they have not taken in that regular course.

Students will be permitted by the faculty to change from one regular course to the same class in another regular course, and will be required to make up only such back work in the new course as is necessary in order to carry on the regular studies in their class.

Permission to change from one course to another will not be granted within two weeks of any term or mid-term examination.

ADMISSION FROM OTHER COLLEGES.

Students coming from another college of similar rank will be assigned to the class to which they would belong in the institution which they have left, and will be required to make up only such back work in the course to which they are assigned as is necessary in order to carry on the regular studies of their class.

COURSES OF INSTRUCTION.

The courses of study include the physical, chemical, and natural sciences, with their applications; agriculture, botany, animal industry, horticulture, mechanics, astronomy, mathematics, drawing, civil, electrical, mechanical and mining engineering; architecture; physiology and veterinary science; pharmacy, English, French, German and Latin languages; history, political economy; mental and moral sciences; education.

The studies are arranged in regular courses so as to offer liberal and practical education as a preparation for the active pursuits of life.

There are ten degree courses for undergraduates, each leading to the degree of Bachelor of Science (B. S.) and requiring four years for its completion:

I. Course in Civil Engineering.
II. Course in Electrical Engineering.
III. Course in Mechanical Engineering.
IV. Course in Mining Engineering.

V. COURSE IN ARCHITECTURE.
VI. COURSE IN CHEMISTRY AND METALLURGY.
VII. COURSE IN AGRICULTURE.
VIII. COURSE IN PHARMACY.
IX. COURSE IN CHEMICAL ENGINEERING.
X. GENERAL COURSE.

SHORTER COURSES.

XI. TWO-YEAR COURSE IN MECHANIC ARTS.
XII. TWO-YEAR COURSE IN AGRICULTURE.
XIII. TWO-YEAR COURSE IN PHARMACY (Ph. G).
XIV. THREE-YEAR COURSE IN PHARMACY, (Ph. C.)
XV. THREE-YEAR COURSE IN VETERINARY MEDICINE. (D. V. M.)
XVI. TWO-YEAR COURSE IN APPLIED ELECTRICITY.
XVII. COURSE FOR ROAD FOREMEN AND INSPECTORS.
XVIII. ONE-YEAR COURSE IN WIRELESS TELEGRAPHY.

Special Course in Agriculture.—Young men over twenty-one years of age who desire to study agriculture will be permitted without examination to enter classes in agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied. They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus in one year acquire valuable practical knowledge of scientific agriculture.

Course I. includes the principles and applications of the sciences that directly relate to civil engineering, and is adapted to those who expect to enter that profession.

Course II. includes, besides the general principles and applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged to fit men for the profession of electrical engineering.

Course III. furnishes instruction in steam engineering, materials of construction, drawing and machine design, electrical engineering, together with laboratory work. The course is intended to qualify men to fill positions in the manufacturing industries.

Course IV. includes theoretical and practical instruction in geology, mineralogy; chemistry, civil and electrical engineering, as applied to mines, mapping, exploration; boring, ventilation; timbering, and all the operations pertaining to the profession of mining engineering.

Course V. has been arranged to give theoretical and practical knowledge of architecture in order to enable students to take advantage of office opportunities upon graduation. It embraces architectural drawing and design, history, and ornamental architectural engineering, and office practice.

Course VI. provides for thorough theoretical and practical instruction in pure and technical chemistry and metallurgy, and in scientific branches relating thereto. Students taking this course also pursue the study of German or French during the junior and senior years, and are thus prepared to utilize for reference and for study scientific journals and works published in those languages.

Course VII. includes theoretical and practical instruction in those branches that relate to agriculture, horticulture, animal husbandry, botany, and entomology, and is especially adapted to those who intend to devote themselves to agricultural and horticultural pursuits.

Course VIII. includes, besides the general education of Course VI. of the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Course IX. has been arranged for students who desire preparation for chemical engineering work with special reference to planning, construction and operation of plants employed in the chemical industries, such as manufacture of fertilizers, sugars, ceramics, oils, and fats, and their products, coal by-products, etc., etc.

Course X. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as those who intend ultimately to engage in teaching or in some commercial or professional business.

Courses XI., XII., XIII., XIV., XV., XVI., XVII., and XVIII., have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and to take one of the regular degree courses.

DEGREES AND CERTIFICATES.

A student who completes the work of the two-year course in pharmacy and submits a satisfactory thesis will be granted the degree of Graduate in Pharmacy (Ph. G.)

A student who completes the work of the three-year course in pharmacy and submits a satisfactory thesis, will be granted the degree of Pharmaceutical Chemist (Ph. C.)

A student who completes the work of the three-year course in veterinary medicine and submits a satisfactory thesis, will be granted the degree of Doctor of Veterinary Medicine. (D. V. M.)

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, with approval of the faculty, may be awarded a certificate of proficiency in that subject.

Students who complete one of the two-year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

No certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English. Every applicant for a certificate will be required to stand this special examination during the final year.

Declamations and themes or orations are required of all regular students pursuing courses leading to a degree. For requirements, see Department of English.

GRADUATE COURSES.

A more extended course of study may be taken by a graduate of this institution or of any college of equal grade. The completion of a course which leads to a post graduate degree of Master of Science requires one year's residence, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the faculty.

The candidate must also present to the faculty a satisfactory thesis showing independent investigation upon some subject pertaining to his course, and must pass an examination, at the close of each term, on the course of study prescribed, in which he must attain a grade of

75 per cent. The examination is written, and also oral in the presence of the faculty.

The subject for the thesis must be submitted to the faculty for approval prior to January first, and the thesis given to the professor by May first.

Applicants for a post-graduate degree and special students in post-senior studies are subject to the same general regulations as other students, and *pay the same fees*, but are exempt from all military duty.

The following courses are prescribed for the degrees named:

1. *Master of Science.*—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class; or in special cases, with the approval of the faculty, a student may devote his full time to work in two departments, in each of which he has completed the full senior course.

2. *Master of Science in Pharmacy.*—Pharmacy and Chemistry.

PROFESSIONAL DEGREES IN ENGINEERING.

1. Degrees in Course.—The professional degree of Civil Engineer, Electrical Engineer, Mechanical Engineer, Chemical Engineer, or Engineer of Mines will be conferred upon graduate students upon the satisfactory completion of the course of study prescribed, a residence of one year at the institute being required for the completion of those courses.

A written application stating the degree desired and the course of study selected must be submitted to the faculty at the beginning of the session. A satisfactory thesis must be submitted by May first.

The following courses of study are prescribed for the degrees named:

Civil Engineer.—Civil Engineering and any two subjects selected from the following: Mathematics, analytical mechanics, mechanical engineering, electrical engineering, mining engineering, bacteriology.

Electrical Engineer.—Electrical engineering and mechanical engineering, or electrical engineering, mathematics and civil engineering.

Mechanical Engineer.—Mechanical engineering and machine design; or mechanical engineering, mathematics and mining engineering.

Chemical Engineer.—Electro-chemistry and advanced analytical or organic chemistry, together with one or more subjects selected from the following: Mechanical engineering, machine design, electrical engineering, mining engineering.

Engineer of Mines.—Graduate students who have completed the course in mining engineering may apply for this degree. The subjects to be pursued are mining engineering, civil engineering, and one other technical subject relating to mining and metallurgy, and approved by the faculty.

II. Degrees for Professional Work.—The above named professional degrees may be conferred upon graduates of the Alabama Polytechnic Institute in civil, electrical, mechanical, chemical, and mining engineering, upon complying with the following requirements.

1. The candidate must have spent at least four full years in the practice of that branch of engineering in which he graduated.
2. An approved thesis must be submitted to the faculty not later than May 1st of the year in which the degree is sought.
3. The student must show that he has filled satisfactorily a responsible position in charge of important engineering work. Written testimonials from employers or clients will be accepted as evidence of satisfactory service.
4. A written application, stating the degree desired, and giving a report or outline of the professional work upon which the application is based, must be submitted not later than January 1st of the year in which the degree is to be granted.

III. Special Students in Graduate Studies.—Students who are not graduates, but are qualified in special subjects to prosecute graduate studies, and desire to prepare themselves more thoroughly for professional or special work in any of the departments of engineering, in chemistry, pharmacy, veterinary science, or other subjects in which instruction is given, may, when qualified, with approval of the faculty, enter this higher department of study and have all the privileges of post-graduate students.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

Two degrees will not be given the same year.

LABORATORIES.

Laboratory instruction constitutes an important feature in the course of education provided for the students and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. CIVIL ENGINEERING, FIELD WORK, SURVEYING, ETC.
II. ELECTRICAL ENGINEERING, TELEPHONE ENGINEERING.
III. MECHANICAL ENGINEERING.
IV. MECHANIC ARTS.
V. MINING ENGINEERING, MINERALOGY.
VI. ORE DRESSING.
VII. ARCHITECTURE.
VIII. TECHNICAL DRAWING, MACHINE DESIGN.
IX. CHEMISTRY, METALLURGY.
X. AGRICULTURE.
XI. BOTANY.
XII. PHARMACY, PHARMACEUTICAL CHEMISTRY.
XIII. HORTICULTURE.
XIV. ENTOMOLOGY.
XV. ANIMAL HUSBANDRY.
XVI. HISTORY, LATIN.
XVII. PHYSICS.
XVIII. MILITARY TACTICS.
XIX. VETERINARY SCIENCE, BACTERIOLOGY, PHYSIOLOGY.
XX. WIRELESS TELEGRAPHY.

NOTE.—Special work in Latin or History may be taken by students in the general course as a substitute for laboratory work.

ORGANIZATION

The instruction offered by the Institute is arranged in four divisions: (1) College of Engineering and Mines, (2) College of Agricultural Sciences, (3) Academic Departments, (4) College of Veterinary Medicine and Surgery.

I. The College of Engineering and Mines offers degree courses in (1) civil engineering, (2) electrical engineering, (3) mechanical engineering, (4) mining engineering, (5) chemical engineering, (6) chemistry and metallurgy, and (7) architecture.

In addition, students in these courses of the College of Engineering and Mines receive instruction in other departments as follows: Mechanical drawing and machine design, English, mathematics, history, and Latin, modern languages, physics, chemistry, and military science and tactics.

II. The College of Agricultural Sciences offers regular degree courses in (1) agriculture, (2) chemistry, (3) botany, (4) horticulture and forestry, (5) animal husbandry, and (6) pharmacy; a three-year course in pharmacy; a two-year course in pharmacy; a two-year course in agriculture.

This college comprises the following departments: Chemistry, agriculture, botany, pharmacy, horticulture and forestry, entomology, and animal husbandry.

In addition, students in the different departments of the College of Agricultural Sciences receive instruction in other departments as follows: English, history, and Latin, modern languages, mathematics, mechanic arts, surveying, physics, geology, and mining engineering, mechanical drawing and machine design, military science and tactics, and veterinary science.

III. A degree course is offered in the following subjects: Education, political economy, mental science, English, history, and Latin, modern languages, mathematics, physics, military science and tactics; and special pedagogical courses.

In addition, students in the general course receive instruction in the following technical departments: Mechanic arts, drawing, geology, animal husbandry, chemistry, botany, and agriculture.

IV. The College of Veterinary Medicine and Surgery offers a three-year course leading to the degree of Doctor of Veterinary Medicine. This college comprises the following departments: Veterinary medicine, physiology, surgery, anatomy, therapeutics, pathology, histology, bacteriology, obstetrics, infectious diseases, meat inspection, milk inspection, and animal parasites.

In addition, students in the College of Veterinary Medicine and Surgery receive instruction in other departments as follows: English, chemistry, pharmacy, toxicology, and physiological chemistry, animal husbandry, and botany.

COURSES OF INSTRUCTION

COURSES OF INSTRUCTION

(Note:—The numbers in the Courses of Instruction refer to the subjects as described under "Description of Courses," pages 103 to 191 of this catalogue. The following abbreviations are used: Ac., Academic Departments; Eng., College of Engineering and Mines; Agr., College of Agricultural Sciences; Vet., College of Veterinary Medicine and Surgery; H. Wk., Hours per Week.)

English, German, French, Latin, or Spanish, may be taken as language in freshman, sophomore, junior and senior classes, provided there is no conflict in schedule.

A student who, on surgeon's certificate, is excused from any subject will be required to substitute other work approved by the faculty.

GENERAL COURSE

FRESHMAN CLASS.

First Term.

	H. Wk.
English (Ac. 102a)	3
History (Ac. 201)	2
Latin (Ac. 209)	3
Mathematics (Ac. 401)	5
Chemistry (Agr. 101)	4
Agriculture (Agr. 201, 801)	2
Drawing (Eng. 601)	4
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term.

	H. Wk.
English (Ac. 102b)	3
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	4
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
English (Ac. 102b)	3
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	4
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

SOPHOMORE CLASS.

First Term.

	H. Wk.
Latin (Ac. 210)	5
English (Ac. 103)	3
History (Ac. 202)	3
†Mathematics (Ac. 403)	5
Drawing (Eng. 603)	3
Botany (a) (Agr. 301)	6
Chemical Lab'y (Agr. 110a) or Mechanic Arts (Eng. 361), or other Lab'y	4
Military Drill (Ac. 600)	3

Second Term.

	H. Wk.
Latin (Ac. 210)	5
English (Ac. 104)	3
History (Ac. 202)	3
†Mathematics (Ac. 403)	5
Drawing (Eng. 603)	3
Botany (a) (Agr. 301)	6
Chemical Lab'y (Agr. 110a) or Mechanic Arts (Eng. 362), or other Lab'y	4
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
Latin (Ac. 210)	5
English (Ac. 104)	3
History (b) (Ac. 204)	3
†Mathematics (Ac. 404)	5
Drawing (Eng. 603)	3
Botany (a) (b) (Agr. 301)	6
Chemical Lab'y (Agr. 110a) or Mechanic Arts (Eng. 362), or other Lab'y	4
Military Drill (Ac. 600)	3

(a) Surveying or Physical Lab'y or Physiology may be substituted.

(b) Or Zoology.

†With approval of faculty other work may be substituted.

Junior Class.

First Term.

	H. Wk.
English (Ac. 107)	3
*Latin (Ac. 211)	3
French (Ac. 301a)	4
German (Ac. 305a)	4
†Organic Chem. (Agr. 103a)	3
Physics (Ac. 504)	3
Military Tactics (Ac. 601)	1
History (a) (Ac. 206)	6
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 107)	3
*Latin (Ac. 211)	3
French (Ac. 301b)	3
German (Ac. 305b)	3
†Organic Chem. (Agr. 103a)	3
Physics (Ac. 504)	3
Military Tactics (Ac. 601)	1
History (a) (Ac. 206)	6
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 107)	3
*Latin (Ac. 211)	3
French (Ac. 301c)	4
German (Ac. 305c)	4
†Organic Chem. (Agr. 103a)	3
Physics (Ac. 504)	3
Military Tactics (Ac. 602)	1
History (a) (Ac. 206)	6
Military Drill (Ac. 600)	3

* Or advanced civics.

(a) The student may substitute laboratory of any department of natural science for which he may be qualified.

† Other science course approved by faculty may be substituted.

Senior Class

First Term

	H. Wk.
English (Ac. 109)	2
Mental Science (Ac. 1)	2
Latin (x) (Ac. 212)	3
French (Ac. 302a)	4
German (Ac. 306a)	4
Geology (Eng. 441)	2
Military Science (Ac. 603)	1
History (a) (Ac. 206)	6

Second Term.

Political Economy (Ac. 2)	2
Mental Science (Ac. 1)	2
Latin (x) (Ac. 212)	3
French (Ac. 302b)	3
German (Ac. 306b)	3
Geology (Eng. 441)	2
Military Science (Ac. 604)	1
History (a) (Ac. 206)	6

Third Term.

Political Economy (Ac. 2)	2
Mental Science (Ac. 1)	2
Latin (x) (Ac. 212)	3
French (Ac. 302c)	4
German (Ac. 306c)	4
Geology (Eng. 441)	2
Astronomy (Ac. 506) or Teachers' Physics (Ac. 508)	2
History (a) (Ac. 206)	6
Military Science (Ac. 605)	1

(x) English Constitutional History may be substituted.

(a) The student may substitute laboratory of any department of natural science for which he may be qualified.

COLLEGE OF ENGINEERING AND MINES.

The following studies in the freshman class are prescribed in the courses in civil, electrical, mechanical, mining, and chemical engineering, and in architecture and chemistry and metallurgy:

Freshman Class.

First Term.

English (Ac. 101a, 102a,b)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Agriculture (Agr. 201, 801)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	4
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5

	H. Wk.
Surveying (Eng. 102)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	4
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Surveying (Eng. 103)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	4
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

CIVIL ENGINEERING.

SOPHOMORE CLASS.

First Term.

English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Plane Surveying (Eng. 102)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 361)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Topographic Surveying (Eng. 103)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 104)	3
Mathematics (Ac. 404)	5
Railroad Surveying (Eng. 104)	7
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 305)	5
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Surveying, (Eng. 105): Forty-eight hours per week for four weeks immediately after commencement in summer camp.

JUNIOR CLASS.

First Term.

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Railroad Surveying (Eng. 106)	6
Roads and Pavements (Eng. 107)	5
Structural Drafting (Eng. 112)	5
Field Work	6
Graphic Statics (Eng. 111)	3
*Machine Shop (Eng. 374) or Mineralogy (Eng. 431)	4
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Strength of Materials (Eng. 322)	5
Road Materials Lab'y (Eng. 108)	3
Structural Drafting (Eng. 112)	5
Field Work	6
Graphic Statics (Eng. 111)	3
*Machine Shop (Eng. 374) or Mineralogy (Eng. 432)	4
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Strength of Materials (Eng. 322)	5
Road and Street Improvements (Eng. 109)	3
Structural Drafting (Eng. 112)	5
*Machine Shop (Eng. 374) or Mineralogy (Eng. 433)	4
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

* And Practical Mechanics (Eng. 321).

Surveying: Forty-eight hours per week for four weeks immediately after commencement in summer camp.

SENIOR CLASS

First Term.

	H. Wk.
English (Ac. 108)	2
Physics (Ac. 505)	2
Geology (Eng. 441)	2
Theory of Structures (Eng. 113)	5
Railroad Engineering (Eng. 115)	3
Bridge and Structural Design (Eng. 114)	9
Military Science (Ac. 603)	1
Thesis (Eng. 120)	4

Second Term.

	H. Wk.
Political Economy (Ac. 2)	2
Physics (Ac. 505)	2
Geology (Eng. 441)	2
Theoretical Hydraulics (Eng. 116)	5
Concrete and Masonry Construction (Eng. 118)	3
Military Science (Ac. 604)	1
Mechanical Engineering Lab. (Eng. 382)	4
Thesis (Eng. 120)	9

Third Term.

	H. Wk.
Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Geology (Eng. 441)	3
Sanitary Engineering(Eng.119)	5
Masonry and Concrete Construction (Eng. 118)	3
Practical Hydraulics (Eng. 117)	3
Bridge and Structural Design (Eng. 114)	9
Military Science (Ac. 605)	1

ELECTRICAL ENGINEERING

SOPHOMORE CLASS.

First Term.

	H. Wk.
English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Surveying (Eng. 102)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 361)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term.

	H. Wk.
English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Applied Mechanics (Eng. 312)	3
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop work (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
English (Ac. 104)	3
Mathematics (Ac. 404)	5
Applied Mechanics (Eng. 312)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 362)	5
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

JUNIOR CLASS.

First Term.

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 201)	3
Electrical Meas. (Eng. 205)	1
Kinematics (Eng. 604)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 321)	1
Electrical Lab'y (Eng. 206)	4
Shop Work (Eng. 371)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term.

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 202)	3
Electrical Meas. (Eng. 205)	1
Strength of Materials (Eng. 322)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 321)	1
Electrical Lab'y (Eng 207)	4
Shop Work (Eng. 371)	6

	H. Wk.
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 203)	3
Electrical Tests (Eng. 205)	1
Strength of Materials (Eng. 322)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 321)	1
Electrical Lab'y (Eng. 208)	4
Shop Work (Eng. 371)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

Senior Class

First Term.

English (Ac. 108)	2
Physics (Ac. 505)	2
Electrical Eng. (Eng. 210)	3
Electrical Lab'y (Eng. 213)	4
Electrical Desig'ng (Eng. 211)	2
Telephone Eng. (Eng. 215)	2
Telephone Lab'y. (Eng. 216)	2
Power Plant Eng. (Eng. 331)	5
Mech. Eng. Lab'y. (Eng. 381)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 603)	1

Second Term.

Political Economy (Ac. 2)	2
Physics (Ac. 505)	2
Electrical Eng. (Eng. 211)	3
Electrical Lab'y. (Eng. 213)	4
Electrical Designing (Eng.211)	2
Telephone Eng. (Eng. 215)	2
Telephone Lab'y (Eng. 216)	2
Street Railways (Eng. 214)	2
Thermodynamics (Eng. 332)	5
Mech. Eng. Lab. (Eng. 382)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 604)	1

Third Term.

	H. Wk.
Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Electrical Eng. (Eng. 212)	5
Electrical Eng.Lab. (Eng. 213)	4
Street Railways (Eng. 214)	2
Specifications and Contracts (Eng. 219)	2
Thermodynamics (Eng. 332)	5
Mech. Eng. Lab. (Eng. 383)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 605)	1

MECHANICAL ENGINEERING

Sophomore Class.

First Term.

English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Surveying (Eng. 102)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 361)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Applied Mechanics (Eng. 312)	3
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 104)	3
Mathematics (Ac. 404)	5
Applied Mechanics (Eng. 312)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Shop Work (Eng. 362)	5
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Junior Class.

First Term.

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Kinematics (Eng. 604)	3

	H. Wk.
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Electrical Eng. (Eng. 204)	3
Elec. Eng. Lab'y (Eng. 206)	4
Practical Mechanics (Eng 321)	1
Shop Work (Eng. 371)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Strength of Materials (Eng.322)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Electrical Eng. (Eng. 204)	3
Elec. Eng. Lab'y. (Eng. 207)	4
Practical Mechanics (Eng 321)	1
Shop Work (Eng. 371)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Strength of Materials (Eng.322)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Electrical Eng. (Eng. 204a)	3
Elec. Eng. Lab'y (Eng. 208)	4
Practical Mechanics (Eng 321)	1
Shop Work (Eng. 371)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

Summer course, engineering 377. Taken immediately after commencement.

SENIOR CLASS

First Term.

English (Ac. 108)	2
Physics (Ac. 505)	2
Electrical Eng. (a) (Eng. 217)	3
Heating and Ventilating (Eng. 334)	2
Power Plant Eng. (Eng. 331)	5
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Elec. Eng. Lab'y (Eng. 218)	4
Mech. Eng. Lab'y (Eng. 381)	4
Military Science (Ac. 603)	1

Second Term.

	H. Wk.
Political Economy (Ac. 2)	2
Physics (Ac. 505)	2
Hydraulics (Eng. 110)	5
Thermodynamics (Eng. 332)	5
Gas Engines (Eng. 335)	2
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Mech. Eng. Lab'y (Eng. 382)	4
Military Science (Ac. 604)	1

Third Term.

Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Thermodynamics (Eng. 332)	5
Metallurgy (Agr. 104b)	3
Contracts and Specifications (Eng. 219)	2
Refrigeration (Eng. 336)	3
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Mech. Eng. Lab'y (Eng. 383)	4
Military Science (Ac. 605)	1

(a) Course 113 in civil engineering may be substituted.

MINING ENGINEERING.

SOPHOMORE CLASS.

First Term.

English (Ac. 103	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Plane Surveying (Eng. 102)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 361)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Topographic Surveying (Eng. 103)	5
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
English (Ac. 104)	3
Mathematics (Ac. 404)	5
Railroad Surveying (Eng. 104)	7
Descriptive Geometry (Eng. 602)	3
Drawing (Eng. 603)	3
Mechanic Arts (Eng. 362)	5
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Surveying, (Eng. 105):

Forty-eight hours per week for four weeks immediately after commencement in summer camp.

JUNIOR CLASS.

First Term.

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Mine Surveying (Eng. 401)	5
Geology (Eng. 435)	2
Drawing (Eng. 403)	4
Mineralogy Laboratory (Eng. 431)	4
Chemical Lab'y (Agr. 110a)	6
Practical Mechanics (Eng. 321)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term.

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Applied Mechanics (Eng. 312)	3
Geology (Eng. 435)	2
Drawing (Eng. 403)	4
Mining Engineering (Eng.402)	5
Mineralogy Laboratory (Eng. 432)	4
Chemical Lab'y (Agr. 110a)	6
Practical Mechanics (Eng. 321)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Applied Mechanics (Eng. 312)	3
Geology (Eng. 435)	2
Drawing (Eng. 403)	4
Mining Engineering (Eng.402)	5
Mineralogy Laboratory (Eng. 433)	4
Chemical Lab'y (Agr. 110a)	6
Practical Mechanics (Eng. 321)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Summer course, Engineering 404. Taken immediately after commencement.

SENIOR CLASS

First Term.

	H. Wk.
English (Ac. 108)	2
Physics (Ac. 505)	2
Economic Geology (Eng. 442)	2
Mining Engineering (Eng. 411)	3
Electrical Eng. (Eng. 204)	2
*Machine Shop (Eng. 374)	4
Metallurgy (Agr. 104)	3
Drawing (Eng. 412)	3
Military Science (Ac. 603)	1
Assaying (Agr. 110d)	8
Metallurgical Lab'y (Eng. 413)	3

Second Term.

	H. Wk.
Political Economy (Ac. 2)	2
Physics (Ac. 505)	2
Hydraulics (Eng. 110)	5
Mining Engineering (Eng. 411)	3
Electrical Eng. (Eng. 204)	2
*Machine Shop (Eng. 374)	4
Metallurgy (Agr. 104)	3
Drawing (Eng. 412)	3
Military Science (Ac. 604)	1
Assaying (Agr. 110d)	8
Metallurgical Lab'y (Eng. 413)	3

Third Term.

	H. Wk.
Political Economy (Ac. 2)	2
Astronomy (Ac. 506)	2
Economic Geology (Eng. 443)	2
Mining Engineering (Eng. 411)	3
*Machine Shop (Eng. 374)	4
Metallurgy (Agr. 104b)	3
Drawing (Eng. 412)	3
Military Science (Ac. 605)	1
Assaying (Agr. 110d)	8
Metallurgical Lab'y (Eng. 413)	3

* Electrical laboratory may be substituted.

ARCHITECTURE.

SOPHOMORE CLASS.

First Term.

	H. Wk.
Architectural Drawing (Eng. 501)	6
Architectural Shades and Shadows (Eng. 541)	1
Freehand Drawing (Eng. 511)	2
Building Construction (Eng. 521)	4
Descriptive Geometry (Eng. 602)	4
Mathematics (Ac. 403)	5
English (Ac. 103)	3
Surveying (Eng. 102)	5
History (Ac. 202)	3
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term.

Architectural Drawing (Eng. 501)	6
Architectural Shades and Shadows (Eng. 541)	1
Freehand Drawing (Eng. 511)	2
Building Construction (Eng. 521)	4
Descriptive Geometry (Eng. 602)	4
Mathematics (Ac. 403)	5
English (Ac. 104)	3
History (Ac. 202)	3
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term.

Architectural Drawing (Eng. 501)	6
Architectural Shades and Shadows (Eng. 541)	1
Freehand Drawing (Eng. 511)	2
Building Construction (Eng. 521)	4
Perspective (Eng. 542)	4
Descriptive Geometry (Eng. 602)	4
Mathematics (Ac. 404)	5
English (Ac. 104)	3
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

JUNIOR CLASS.

First Term.

	H. Wk.
Architectural Drawing and Design (Eng. 502)	8
Freehand Drawing (Eng. 512)	2
History of Architecture (Eng. 532)	2
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
French (Ac. 301a)	4
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term.

Architectural Drawing and Design (Eng. 502)	8
Freehand Drawing (Eng. 512)	2
History of Architecture (Eng. 532)	2
Strength of Materials (Eng. 322)	5
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
French (Ac. 301b)	3
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.

Architectural Drawing and Design (Eng. 502)	8
Freehand Drawing (Eng. 512)	2
History of Architecture (Eng. 532)	2
Strength of Materials (Eng. 322)	5
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
French (Ac. 301c)	4
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

SENIOR CLASS

First Term.

Architectural Drawing and Design (Eng. 503)	12
Freehand Drawing (Eng. 513)	2
History of Architecture (Eng. 533)	2
French (Ac. 302a)	4
Theory of Structures (Eng.113)	5
Structural Design (Eng. 114a)	2
English (Ac. 108)	2
Physics (Ac. 505)	2
Military Science (Ac. 603)	1

Second Term.

Architectural Drawing and Design (Eng. 503)	12
Freehand Drawing (Eng. 513)	2

	H. Wk.
History of Architecture (Eng. 533)	2
French (Ac. 302b)	3
Concrete and Masonry Construction (Eng. 118)	3
Structural Design (Eng. 114a)	2
Political Economy (Ac. 2)	2
Physics (Ac. 505)	2
Military Science (Ac. 604)	1

Third Term.

Architectural Drawing and Design (Eng. 503a)	12
Freehand Drawing (Eng. 513)	2
History of Architecture (Eng. 533)	2
French (Ac. 302c)	4
Masonry and Foundations (Eng. 118)	3
Structural Design (Eng. 114a)	4
Political Economy (Ac. 2)	2
Military Science (Ac. 605)	1

CHEMICAL ENGINEERING.

Sophomore Class.

First Term.

English (Ac. 103)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Descriptive Geometry (Eng. 602)	4
Surveying (Eng. 102)	5
Mechanic Arts (Eng. 361)	4
Chem. Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 104)	3
History (Ac. 202)	3
Mathematics (Ac. 403)	5
Descriptive Geometry (Eng. 602)	4
Applied Mech. (Eng. 312)	3
Mechanic Arts (Eng. 362)	4
Chem. Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 104)	3
Mathematics (Ac. 404)	5
Desc. Geometry (Eng. 602)	4
Applied Mechanics (Eng. 312)	5
Mechanic Arts (Eng. 362)	5
Chem. Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Junior Class.

First Term.

	H. Wk.
English (Ac. 107) or French or German	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	4
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 107) or French or German	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y. (Org. Agr. 110f)	4
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 107) or French or German	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	2
Industrial Chem. (Agr. 102a)	4
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	4
Military Drill (Ac. 600)	3

Senior Class

First Term.

English (Ac. 108)	2
Physical Chem. (Agr. 108)	2
German or French	3
Economic Geology (Eng. 442)	2

	H. Wk.
Metallurgy (Agr. 104)	3
Theoretical Chem. (Agr. 107)	2
Electrical Eng. (Eng. 204)	2
Military Science (Ac. 603)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 431)	4
Metallurgical Lab'y (Eng. 413)	3

Second Term.

	H. Wk.
Political Economy (Ac. 2)	2
Physical Chem. (Agr. 108)	2
German or French	3
Metallurgy (Agr. 104)	3
Electrical Eng. (Eng. 204)	2
Gas Engines (Eng. 335)	2
Engineering Chem. (Agr. 106)	2
Military Science (Ac. 604)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 432)	4
Metallurgical Lab'y (Eng. 413)	3

Third Term.

	H. Wk.
Political Economy (Ac. 2)	2
Physical Chem. (Agr. 108)	2
German or French	3
Economic Geology (Eng. 443)	2
Metallurgy (Agr. 104b)	3
Electrical Eng. (Eng. 204a)	2
Engineering Chem. (Agr. 106)	2
Military Science (Ac. 605)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 433)	4
Metallurgical Lab'y (Eng 413)	3

CHEMISTRY AND METALLURGY.

SOPHOMORE CLASS.

Students in the sophomore class in this course may take either the course prescribed for sophomore students in chemical engineering or that prescribed for students pursuing the course in agriculture.

JUNIOR CLASS.

First Term.

	H. Wk.
English (Ac. 107)	3
Bacteriology (Vet. 108)	6
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Military Drill (Ac. 600)	3

Second Term.

	H. Wk.
English (Ac. 107)	3
Bacteriology and Bact. Lab'y (Vet. 108)	6
Physics (Ac. 504)	3
Organic Chem. (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
English (Ac. 107)	3
Physics (Ac. 504)	3
Organic Chem. (Agr. 103a)	2
Industrial Chem. (Agr. 102a)	4
Geology (Eng. 435)	2
Military Science (Ac. 602)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	6
Military Drill (Ac. 600)	3

SENIOR CLASS

First Term.

	H. Wk.
English (Ac. 108)	2
Physical Chem. (Agr. 108)	2
German or French	3
Economic Geology (Eng. 442)	2
Metallurgy (Agr. 104)	3
Theoretical Chem. (Agr. 107)	2
Advanced Inorganic Chem. (Agr. 111)	2
Military Science (Ac. 603)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 401)	4
Metallurgical Lab'y (Eng. 413)	3

Second Term.

	H. Wk.
Political Economy (Ac. 2)	2
Physical Chemistry (Agr. 108)	2
German or French	3
Metallurgy (Agr. 104)	3
Advanced Inorganic Chemistry (Agr. 111)	2
Engineering Chem. (Agr. 106)	2
Military Science (Ac. 604)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 401)	4
Metallurgical Lab'y (Eng. 413)	3

Third Term.

	H. Wk.
Political Economy (Ac. 2)	2
Physical Chemistry (Agr. 108)	2
German or French	3
Economic Geology (Eng. 443)	2
Metallurgy (Agr. 104b)	3
Advanced Inorganic Chemistry (Agr. 111)	2
Engineering Chem. (Agr. 106)	2
Military Science (Ac. 605)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 401)	4
Metallurgical Lab'y (Eng 412)	3

TWO YEAR COURSE IN MECHANIC ARTS.

First Year.

First Term.

	H. Wk.
English (special course)	5
History (special course)	2
Mathematics (special course)	10
Drawing (Eng. 601)	3
Shop Work (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term.

	H. Wk.
English (special course)	5
History (special course)	2
Mathematics (special course)	10
Drawing (Eng. 601)	3
Shop Work (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
English (special course)	5
History (special course)	2
Mathematics (special course)	10
Drawing (Eng. 601)	3
Shop Work (Eng. 353)	6
Military Drill (Ac. 600)	3

Second Year.

First Term.

	H. Wk.
English (special course)	3
Mathematics (special course)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 603)	3
Surveying (Eng. 101)	5
Shop Work (Eng. 361, 371)	12
Military Drill (Ac. 600)	3

Second Term.

	H. Wk.
Mechanics (Eng. 312)	3
English (special course)	3
Mathematics (special course)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 603)	3
Shop Work (Eng. 362, 371)	12
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
Mechanics (Eng. 312)	5
English (special course)	3
Mathematics (special course)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 603)	3
Shop Work (Eng. 362, 371)	13
Military Drill (Ac. 600)	3

TWO-YEAR COURSE IN APPLIED ELECTRICITY

First Year.

First Term.

	H. Wk.
English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Engines and Boilers (Eng. 3S1)	3
Drawing (Eng. 601)	4
Electrical Lab'y (Eng. 206)	4
Shop Work (Eng. 361)	4
Power Plant (Eng. 220)	4

Second Term.

	H. Wk.
English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Gas Engines (Eng. 3S2)	3
Drawing (Eng. 601)	4
Shop Work (Eng. 362)	4
Power Plant (Eng. 220)	4

Third Term.

	H. Wk.
English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 205)	3
Trans. Power (Eng. 3S3)	3
Drawing (Eng. 601)	4
Electrical Lab'y (Eng. 208)	4
Shop Work (Eng. 362)	4
Power Plant (Eng. 220)	4

SECOND YEAR.

First Term.

	H. Wk.
English (special course)	3
Mathematics (Ac. 401)	5
Electrical Eng. (Eng. 217)	4
Kinematics (Eng. 604)	3
Practical Mech. (Eng. 321)	1
Drawing (Eng. 606)	3
Electrical Lab'y (Eng. 218)	4
Shop Work (Eng. 362)	4
Power House (Eng. 220)	4

Second Term.

	H. Wk.
English (special course)	3
Electrical Eng. (Eng. 217a)	4
Applied Mechanics (Eng. 312)	3
Practical Mechanics (Eng 321)	1
Drawing (Eng. 606)	4
Electrical Lab'y (Eng. 218a)	4
Shop Work (Eng. 374)	4
Power House (Eng. 220)	4

Third Term.

	H. Wk.
English (special course)	3
Street Railways (Eng. 214)	2
Electrical Eng. (Eng. 217b)	4
Applied Mechanics (Eng. 312)	5
Practical Mechanics (Eng. 321)	1
Drawing (Eng. 606)	4
Electrical Lab'y (Eng. 218b)	4
Shop Work (Eng. 374)	4
Power House (Eng. 220)	4

SPECIAL COURSE FOR ROAD FOREMEN AND INSPECTORS.

First Term.

	H. Wk.
Mathematics (special course)	5
Drawing (Eng. 601)	4
Surveying (Eng. 102)	5
Roads and Pavements (Eng. 107)	5
Mechanic Arts (Eng. 351 or 361)	6

Second Term.

	H. Wk.
Mathematics (special course)	5
Drawing (Eng. 601)	4
Surveying (Eng. 102)	5
Roads and Pavements (special course)	3
Road Materials Lab'y (Eng. 108)	3
Mechanic Arts (Eng. 352 or 362)	6

Third Term.

	H. Wk.
Mathematics (special course)	5
Drawing (Eng. 601)	4
Surveying (Eng. 102)	5
Roads and Pavements (special course)	3
Road and Street Improvements (Eng. 109)	3

SPECIAL ONE-YEAR COURSE IN WIRELESS TELEGRAPHY.

First Term.

	H. Wk.
English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Engines and Boilers (Eng. 3S1)	3
Drawing (Eng. 601)	4
Electrical Lab'y (Eng. 206)	4
Shop Work (Eng. 361)	4
Wireless Telegraphy (Eng.221)	4

Second Term.

	H. Wk.
English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Gas Engines (Eng. 3S2)	3
Drawing (Eng. 601)	4
Electrical Lab'y (Eng. 207)	4
Shop Work (Eng. 362)	4
Wireless Telegraphy (Eng. 221)	4

Third Term.

	H. Wk.
English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 205)	3
Trans. Power (Eng. 3S3)	3
Drawing (Eng. 601)	4
Electrical Lab'y (Eng. 208)	4
Shop Work (Eng. 362)	4
Wireless Telegraphy (Eng. 221)	4

COLLEGE OF AGRICULTURAL SCIENCES.

AGRICULTURE.

Freshman Class.

First Term.

	H. Wk.
English (Ac. 101a, 102a,b)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Agriculture (Agr. 201, 801)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	4
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 102a, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Surveying (Eng. 101)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	4
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 101b, 102b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Surveying (Eng. 101)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	4
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

Sophomore Class.

First Term.

English (a) (Ac. 103)	3
History (Ac. 202)	3
Corn (Agr. 202)	4
Dairying (Agr. 804)	2
Botany and Botany Laboratory (Agr. 301)	6
Physiology (Vet. 101)	2
Organic Chemistry (Agr. 103b)	2
Stock Judging (Agr. 802)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term.

English (a) (Ac. 104)	3
History (Ac. 202)	3
Surveying (Eng. 101)	5
Botany and Botany Laboratory Agr. 301)	6
Physiology (Vet. 101)	2
Stock Judging (Agr. 803)	2
Farm Accounts (Agr. 203)	2
Organic Chemistry (Agr. 103b)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Third Term.

English (a) (Ac. 104)	3
Surveying (Eng. 101)	2
Botany and Botany Laboratory (Agr. 301)	6
Vertebrate Zoology (Agr. 705)	3
Physiology (Vet. 101)	2
Agriculture (Agr. 203)	4
Agricultural Chem. (Agr. 105)	5
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

(a) Latin may be substituted.

Junior Class.

First Term.

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
*Dairying (c) (Agr. 804)	2
General Bacteriology and Laboratory (Agr. 302)	6
*Veterinary Science and Veterinary Lab'y (a, c) (Vet. 102)	5
Agriculture and Agricultural Lab'y (c) (Agr. 202)	4
†Horticulture and Horticultural Lab'y (c) (Agr. 601, 601a)	6
Geology (Eng. 434)	2
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term.

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Botany and Botany Laboratory (Agr. 303a)	6
*Veterinary Science and Veterinary Lab'y (a, c) (Vet. 102)	5
*Animal Husbandry (c) (Agr. 806, 812)	6
†Horticulture and Horticultural Lab'y (c) (Agr. 602, 603)	7
Geology (Eng. 434)	2
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Botany and Botany Laboratory (Agr. 303b)	9
*Veterinary Science and Veterinary Lab'y (a, c) (Vet. 102)	5
*Animal Husbandry (c) (Agr. 807, 811)	4
Agriculture and Agricultural Laboratory (c) (Agr. 205)	4
†Horticulture and Horticultural Lab'y (c) (d) (Agr. 603a, 604)	7
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

(a) French, German or Latin may be substituted.

(c) Chemical laboratory, Agricultural 110b, may be substituted.

* Required of students who specialize in animal husbandry.

† Required of students who specialize in horticulture.

(d) Elective.

The studies of the course in Agriculture are divided into five groups, as follows:

- Group "A," agriculture: Gives special prominence to crops, soils, and farm machinery.
- Group "B," horticulture: Gives special reference to fruit growing, trucking and landscape gardening.
- Group "C," animal husbandry: Gives special prominence to all work pertaining to live stock.
- Group "D," agricultural chemistry: Especially designed to prepare students for experiment station and fertilizer control work.
- Group "E," botany: Designed to train students for station work or to pursue advanced work in botany.

The elective work in each group must be approved at the beginning of the senior year by the president and the professor in charge, and with the required work must aggregate at least twenty-one hours, counting two hours laboratory equal to one hour.

The giving of an elective course will be optional with the professor in charge unless it be elected by at least four students.

GROUP "A," AGRICULTURE.

First Term.

	H. Wk.
Agr. and Agr. Lab. (Agr. 206)	4
Entomology and Ent. Laboratory (Agr. 701, 702)	5
Military Science (Ac. 603)	1
German (a) (Ac. 305a)	4
Thesis (Agr. 209)	2

Second Term.

Agr. and Agr. Lab. (Agr. 212, 214)	4
Forestry and Forestry Laboratory (Agr. 608)	5
Military Science (Ac. 604)	1
German (a) (Ac. 305b)	3
Thesis (Agr. 209)	2

Third Term.

Agr. and Agr. Lab. (Agr. 208)	4
Entomology and Ent. Lab'y (Agr. 703, 704)	5
Military Science (Ac. 605)	1
German (a) (Ac. 305c)	4
Thesis (Agr. 209)	2

(a) French may be substituted.

Electives: The equivalent of at least seven hours from the following subjects:

First Term.

Soils and Soils Lab. (Agr. 211)	5
Cotton (Agr. 206)	4
Animal Husbandry (Agr. 808, 809, 812)	6
Hort. and Hort. Lab. (Agr. 605)	4
Plant Breeding and Canning (Agr. 610)	4
Botany and Botany Lab'y (Agr. 304)	6
Botany and Botany Lab'y (Agr. 307)	6

	H. Wk.
Vet. Science and Vet. Lab'y (Vet. 102)	5
Industrial Chem. (Agr. 102a)	3
French (Ac. 302a)	4
Physics (Ac. 505)	2
Chemical Lab'y (Agr. 110)	6
Mathematics (Ac. 403 & 404, or 405)	5

Second Term.

Soils and Soils Lab. (Agr. 211)	5
Agriculture (Agr. 207)	4
Animal Husbandry (Agr. 809, 810, 814)	6
Horticulture (Agr. 608)	5
Botany and Botany Lab'y (Agr. 304)	6
Botany and Botany Lab'y (Agr. 305)	6
Vet. Science and Vet. Lab'y (Vet. 102)	5
Industrial Chem. (Agr. 102a)	3
French (Ac. 302b)	3
Chemical Lab'y (Agr. 110)	6
Mathematics (Ac. 403 & 404, or 405)	5
Forestry and Forestry Lab'y (Agr. 609)	5

Third Term.

Soils and Soils Lab. (Agr. 211)	5
Agriculture (Agr. 208)	4
Animal Husbandry (Agr. 809, 811)	4
Horticulture and Horticulture Lab'y (Agr. 606)	5
Botany and Botany Lab'y (Agr. 306)	6
Vet. Science and Vet. Lab'y (Vet. 102)	5
Industrial Chem. (Agr. 102a)	3
French (Ac. 302c)	4
Chemical Lab'y (Agr. 110)	6
Mathematics (Ac. 403 & 404, or 405)	5

GROUP "B," HORTICULTURE.

First Term.

	H. Wk.
Horticulture and Horticulture Lab'y (Agr. 605, 607)	7
Entomology and Ent. Lab'y (Agr. 701, 702)	5
Military Science (Ac. 603)	1
German (a) (Ac. 306a)	3
Thesis (Agr. 611)	

Second Term.

Horticulture and Horticulture Lab'y (Agr. 605, 608, 610)	8
Forestry and Forestry Lab'y Agr. 609)	4
Military Science (Ac. 604)	1
German (a) (Ac. 306b)	4
Thesis (Agr. 611)	

Third Term.

Horticulture and Horticulture Lab'y (Agr. 606)	5
Entomology and Ent. Lab'y (Agr. 703, 704)	5
Military Science (Ac. 605)	1
German (a) (Ac. 306c)	4
Thesis (Agr. 611)	

(a) French or English and Political Economy and one additional subject may be substituted.

Electives: The equivalent of at least five hours from the subjects as listed under Group "A."

GROUP "C," ANIMAL HUSBANDRY.

Animal Husbandry (Agr. 808, 809)	5
Animal Hus. Lab'y (Agr. 812, 813)	5
Entomology and Entomology Lab'y (Agr. 701, 702)	5
Military Science (Ac. 603)	1
German (a) (Ac. 306a)	4
Thesis	

Second Term.

Animal Husbandry (Agr. 809, 813, 814)	8
Animal Hus. Lab'y (Agr. 810)	2
Military Science (Ac. 604)	1
German (a) (Ac. 306b)	3
Thesis	

Third Term.

Animal Husbandry (Agr. 809, 811, 813)	8
Entomology and Entomology Lab'y (Agr. 703, 704)	5
Military Science (Ac. 605)	1

	H. Wk.
German (a) (Ac. 306c)	4
Thesis	

(a) French may be substituted.

(b) Meat and milk inspection may be substituted.

Electives: The equivalent of at least six hours from the subjects listed under Group "A," or the Third Year Course in Veterinary Medicine.

GROUP "D," AGRICULTURAL CHEMISTRY.

First Term.

	H. Wk.
Chemical Lab'y (Agr. 110)	6
Entomology (Agr. 701, 702)	5
Military Science (Ac. 603)	1
German (a) (Ac. 306a)	4

Second Term.

	H. Wk.
Chemical Lab'y (Agr. 110)	6
Forestry and Forestry Lab'y (Agr. 609)	4
Military Science (Ac. 604)	1
German (a) (Ac. 306b)	3

Third Term.

	H. Wk.
Chemical Lab'y (Agr. 110)	6
Entomology (Agr. 703, 704)	5
Military Science (Ac. 605)	1
German (a) (Ac. 306c)	4

(a) French may be substituted.

Electives: The equivalent of at least seven hours from the subjects as listed under Group "A."

GROUP "E," BOTANY.

First Term.

	H. Wk.
German (a) (Ac. 306a)	4
Botany and Botany Lab'y (Agr. 304)	6
Soils and Soils Lab'y (Agr.211)	5
Entomology (Agr. 701, 702)	5
Military Science (Ac. 603)	1

Second Term.

	H. Wk.
German (a) (Ac. 306b)	3
Botany and Botany Lab'y (Agr. 304 or 305)	6
Soils and Soils Lab'y (Agr.211)	5
Forestry and Forestry Lab'y (Agr. 609)	5
Military Science (Ac. 604)	1

Third Term.

	H. Wk.
German (a) (Ac. 306c)	4
Botany and Botany Lab'y (Agr. 306)	6
Soils and Soils Lab. (Agr. 211)	5
Entomology (Agr. 702)	5
Military Science (Ac. 605)	1

(a) French may be substituted.

Electives: The equivalent of at least six hours from the subjects listed under Group "A," subject to the direction of the professor.

TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR

First Term.

	H. Wk.
Corn (Agr. 204)	4
Dairying (Agr. 816)	6
Veterinary Science (Vet. 102)	5
Chemistry (Agr. 101)	4
English (special course)	3
Physiology (Vet. 101)	2
Livestock Feeding (Agr. 817)	2
*Shop Work	6
Military Drill (a) (Ac. 600)	3

Second Term.

	H. Wk.
Agriculture (Agr. 202)	2
Veterinary Science (Vet. 102)	5
Chemistry (Agr. 101)	4
English (special course)	3
Physiology (Vet. 101)	2
Livestock Management (Agr. 818)	2
Livestock Feeding (Agr. 817)	2
Judging Livestock (Agr. 819)	4
*Shop Work	6
Military Drill (a) (Ac. 600)	3

Third Term.

	H. Wk.
Forage Plants (Agr. 203)	4
Veterinary Science (Vet. 102)	5
Chemistry (Agr. 101)	4
English (special course)	3
Physiology (Vet. 101)	2
Livestock Management (Agr. 818)	2
Judging Beef Cattle (Agr. 820)	2
Livestock Feeding (Agr. 817)	2
Agriculture (Agr. 203)	4

H. Wk.
*Shop Work ------------------6
Military Drill (a) (Ac. 600) --3

(a) Special agricultural students who are of age may be excused from drill.

* Or Chemical Laboratory.

NOTE.—In case students in agriculture have conflicts in schedule, satisfactory substitutes will be accepted.

SECOND YEAR.

First Term.

Poultry (Agr. 822) ----------2
Veterinary Science (Vet. 102) 5
Insects (Agr. 701, 702) -------5
Organic Chem. (Agr. 103b) --2
Livestock Judging (Agr. 821) 4
Botany and Botany Lab'y (Agr. 301) ----------------6
Cotton (Agr. 206) ------------4
Chemical Lab'y (Agr. 110b) ---6

Second Term.

Agriculture (Agr. 212) -------2
Veterinary Science (Vet. 102) -5
Swine Judging (Agr. 823) ----4
Meats (Agr. 824) ------------4
Organic Chem. (Agr. 103b) ---2
Botany and Botany Lab'y (Agr. 301) ----------------6
Chemical Lab'y (Agr. 110b) --6
Forestry (Agr. 609) ---------4

Third Term.

Farm Management (Agr. 208) 4
Bacteriology (Vet. 108) ------6
Insects (Agr. 703, 704) -------5
Vegetable Gardening (Agr. 603a) --------------------6
Principles of Breeding (Agr. 825) ----------------------2
Agr. Chemistry (Agr. 105) ----5
Sheep Judging (Agr. 826) ----2
Botany and Botany Lab'y (Agr. 301) ----------------6
Chemical Lab'y (Agr. 110b) --6
Hort. Lab'y (Agr. 609) -------4

PHARMACY.

FRESHMAN CLASS.

First Term.

H. Wk.
English (102a) --------------3
History (Ac. 201) ------------2
Latin (Ac. 209) --------------3
Mathematics (Ac. 401) --------5
Chemistry (Agr. 101) --------4
Agriculture (Agr. 201, 801) ---2
Drawing (Eng. 601) ----------4
Mechanic Arts (Eng. 351) -----6
Military Drill (Ac. 600) ------3

Second Term.

English (Ac. 102b) -----------3
History (Ac. 201) ------------2
Latin (Ac. 209) --------------4
Mathematics (Ac. 402) -------5
Chemistry (Agr. 101) --------4
Drawing (Eng. 601) ----------3
Mechanic Arts (Eng. 352) ----6
Military Drill (Ac. 600) ------3

Third Term.

English (102b) --------------3
History (Ac. 201) ------------2
Latin (Ac. 205) --------------3
Mathematics (Ac. 402) -------5
Chemistry (Agr. 101) --------4
Drawing (Eng. 601) ----------3
Mechanic Arts (Eng. 353) ----6
Military Drill (Ac. 600) ------3

SOPHOMORE CLASS.

First Term.

Latin (Ac. 210) --------------5
History (Ac. 202) ------------3
†Mathematics (Ac. 403) ------5
Botany (Agr. 309) ------------6
English (Ac. 103) -----------3
Physiology (Vet. 101) -------2
Chemical Lab'y (Agr. 110a) --6
Military Drill (Ac. 600) ------3

Second Term.

Latin (Ac. 210) ------------5
History (Ac. 202) ------------3
English (Ac. 104) ------------3
†Mathematics (Ac. 403) ------5
Botany (Agr. 309) ------------6
Physiology (Vet. 101) --------2
Chemical Lab'y (Ac. 110a) --6
Military Drill (Ac. 600) ------3

Third Term.

Latin (Ac. 210) ------------5
English (Ac. 104) -----------3
†Mathematics (Ac. 404) -------5
Botany (Agr. 306) -----------6
Zoology (Agr. 705) -----------3

	H. Wk.
Physiology (Vet. 101)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

† With approval of faculty other work may be substituted.

JUNIOR CLASS.

First Term.

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Pharmacy (Agr. 401a)	3
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110b)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term.

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
†Pharmacy (Agr. 401a)	3
Pharmaceutical Laboratory (Agr. 401b)	8
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110b)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Pharmaceutical Laboratory (Agr. 401b)	8
Phar. Chem. (Agr. 406)	3
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110b)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

(a) French or German may be substituted.

† Substitute Phar. Chem. (Agr. 406) latter half term.

SENIOR CLASS.

First Term.

	H. Wk.
Bacteriology and Bact. Lab'y (Vet. 108)	6
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	3
Adv. Pharmacog. (Agr. 404)	3
Military Science (Ac. 603)	1
Chemical Lab'y (Agr. 110c)	6
Pharmaceutical Laboratory (Agr. 403b)	12

Second Term.

Bacteriology and Bact. Lab'y Vet. 108)	6
United States Phar. (Agr. 407)	3
†Pharmacology (Vet. 120)	3
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	3
Prescriptions (Agr. 405)	3
Military Science (Ac. 604)	1
Chemical Lab'y (Agr. 110c)	6
Pharmaceutical Laboratory (Agr. 403b)	12

Third Term.

United States Phar. (Agr. 407)	3
Pharmacology (Vet. 120)	3
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	3
Prescriptions (Agr. 405)	3
Military Science (Ac. 605)	1
Toxicology (Agr 110e)	6
Urinalysis (Vet. 117)	3
Pharmaceutical Laboratory (Agr. 403b)	12

†Substitute for Bacteriology in latter half term.

TWO-YEAR COURSE IN PHARMACY.

FIRST YEAR

First Term.

English (a) (special course)	3
Chemistry (Agr. 101)	4
Physiology (Vet. 101)	2
Pharmacy (Agr. 401a)	3
Botany and Botany Lab'y (Agr. 309)	6
Pharmacognosy (Agr. 402)	4
Chemical Lab'y. (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term.

English (a) (special course)	3
Chemistry (Agr. 101)	4
Physiology (Vet. 101)	2
†Pharmacy (Agr. 401a)	3
Pharmacognosy (Agr. 402)	4

H. Wk.
Botany and Botany Lab'y (Agr. 309) ----------------6
Chemical Lab'y (Agr. 110a) --6
Pharmaceutical Laboratory (Agr. 401b) ----------------8
Military Drill (Ac. 600)------3

Third Term.

English (special course) ------3
Botany and Botanical Lab'y (Agr. 306) ----------------6
Chemistry (Agr. 101) --------4
Phar. Chem. (Agr. 406) ------3
Physiology (Vet. 101) --------2
Pharmacognosy (Agr. 402) ----4
Chemical Lab'y (Agr. 110a) --6
Pharmaceutical Laboratory (Agr. 401b) ----------------8
Military Drill (Ac. 600)------3

(a) Latin may be substituted.

† Substitute Phar. Chem. (Agr. 406) latter half term .

Second Year.

First Term.

Pharmacy (Agr. 403a) --------3
Adv. Pharmacog. (Agr. 404) ---3
Pharmaceutical Laboratory (Agr. 403b) --------------12
Organic Chem. (Agr. 103a) ---2
Chemical Lab'y (Agr. 110c) ---6
Bacteriology (Vet 108) -------6
Military Drill (Ac. 600)------3

Second Term.

Pharmacy (Agr. 403a) --------3
Prescriptions (Agr. 405) -----3

H. Wk.
Pharmaceutical Laboratory (Agr. 403b) --------------12
Organic Chem. (Agr. 103a) ---2
Chemical Lab'y (Agr. 110c) ---6
Bacteriology (Vet 108) -------6
United States Phar. (Agr. 407) -3
†Pharmacology (Vet. 120) -----3
Military Drill (Ac. 600)------3

Third Term.

Pharmacy (Agr. 403a) --------3
Prescriptions (Agr. 405) ------3
United States Phar. (Agr. 407) -3
†Pharmacology (Vet. 120) -----3
Pharmaceutical Laboratory (Agr. 403b) --------------12
Organic Chem. (Agr. 103a) ---2
Toxicology (Agr. 110e) -------7
Military Drill (Ac. 600)------3

†Substitute for Bacteriology in latter half second term.

THREE-YEAR COURSE IN PHARMACY.

In the first and second years the same studies are prescribed as in the Two-Year Course.

Third Year.

Entire Session.

Pharmaceutical Chemistry and Lab'y (Agr. 408) ----------15
Chemistry and Chem. Lab'y (Agr. 408j) --------------15
Bacteriological Laboratory (Vet. 108) ----------------10
Military Drill (Ac. 600) ------1

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

VETERINARY MEDICINE.

First Year.

First Term.

H. Wk.
General Chem. (Agr. 101) ----4
Physiology (Vet. 101) --------2
English (Ac. 102a) -----------3
Anatomy and Anat. Lab'y (Vet. 119) -----------------12
Histology (Vet. 104) ---------5
Livestock Feeding (Agr. 817) 2

H. Wk.
Chemical Lab'y (Agr. 110a) --6
Vet. Science (Vet. 102) ------2
Clinics (Vet. 122) ------------3
Military Drill (Ac. 600)------3

Second Term.

General Chem. (Agr. 101) ----4
Physiology (Vet. 101) --------2
English (Ac. 102b) ----------3
Anatomy and Anat. Lab'y (Vet. 119) ----------------15

	H. Wk.
Histology (Vet. 104)	5
Stock Feeding (Agr. 817)	2
Live Stock Management (Agr. 818)	2
Chemical Lab'y (Agr. 110b)	6
Vet. Science (Vet. 102)	2
Clinics (Vet. 122)	3
Military Drill (Ac. 600)	3

Third Term.

General Chem. (Agr. 101)	4
Physiology (Vet. 101)	2
English (Ac. 102b)	3
Live Stock Management (Agr. 818)	2
Anatomy and Anat. Lab'y (Vet. 119)	14
Embryology (Vet. 105)	5
Chemical Lab'y (Agr. 110b)	6
Vet. Science (Vet. 102)	2
Clinics (Vet. 122)	3
Military Drill (Ac. 600)	3

SECOND YEAR.

First Term.

Pharmacy (Agr. 403)	2
Pharmacy Lab'y (Agr. 403a)	8
Vet. Physiology (Vet. 106)	3
Bacteriology and Bact. Lab'y (Vet. 108)	6
Obstetrics (Vet. 110)	2
Vet. Medicine (Vet. 123)	3
Anatomy and Clinical Lab'y (Vet. 119, 122)	12
Vet. Science (Vet. 102)	2
Clinics (Vet. 122)	5
Military Drill (Ac. 600)	3

Second Term.

Pharmacy (Agr. 403)	5
Pharmacy Lab'y (Agr. 403a)	5
Vet. Physiology (Vet. 106)	2
Bacteriology, Pathology and Lab'y (Vet. 108, 109)	6
Obstetrics and Surgery (Vet. 110, 111)	3
Vet. Medicine (Vet. 123)	3

Third Term.

Anatomy and Clinical Lab'y (Vet. 119, 122)	12
Military Drill (Ac. 600)	3
Botany (Agr. 306)	6
Vet. Physiology (Vet. 106)	2
Therapeutics (Vet. 120)	2
Surgery (Vet. 121)	3
Vet. Medicine (Vet. 123)	3
Pathology and Path. Lab'y (Vet. 109)	6
Anatomy and Clinic Lab'y (Vet. 119, 122)	12
Military Drill (Ac. 600)	3

THIRD YEAR

First Term.

Stock Breeding (Agr. 808)	2
Therapeutics (Vet. 120)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Infectious Diseases (Vet. 113)	2
Meat Inspection (Vet. 115)	2
Anatomy and Clinic Lab'y (Vet. 119, 122)	12
Thesis	4

Second Term.

Dairying (Agr. 815)	3
Surgical Exercises (Vet. 112)	4
Therapeutics (Vet. 120)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Infectious Diseases (Vet. 113)	3
Meat Inspection (Vet. 115)	2
Animal Parasites (Vet. 114)	2
Clinic Laboratory (Vet. 122)	12
Thesis	4

Third Term.

Toxicology (Agr. 110e)	7
Urinalysis (Vet. 117)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Milk Inspection (Vet. 116)	3
Animal Parasites (Vet. 114)	2
Clinic Laboratory (Vet. 122)	12
Thesis	4

SCHEDULE OF EXERCISES

MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
1. Econom. Geol. (1,3) 1. An. Chem. (Min.) 1. Bacteriology 1. Botany 1. Drawing 1. Elec. Engineering 1. German 1. Vet. Medicine (1,2) 2. Arch. History 2. Bacteriology (1,2) 2. Drawing 2. Gen. Path. (2,3) 2. Mech. Eng. 2. Pharmacy 2. Horticultural Lab'y. 3. Agr. Chem. (3) 3. Org. Chem. (1,2) 3. Civil Eng. 3. Latin 3. Mechs. for Engineers (2,3) 4. Mathematics	1. Elec. Eng. 1. Infec. Dis. (1,2) 1. Drawing 1,2. Gen. Geology 2. Botany Lab. (Phar.) 2. Drawing 2. German 2. Graphics 2. Machine Design 2. Mineralogy 2. Obstetrics (1,2) 3. Agriculture (2,3) 3. An. Industry (1) 3. Latin 4. Mathematics	1. Econom. Geol. (1,3) 1. Botany 1. Drawing 1. Dairy Farming (2) 1. Elec. Eng. 1. German 1. Infec. Dis. (1,2) 1. Milk Inspec. (3) 2. Drawing 2. Mech. Eng. 2. Pharmacy 2. Graphics 2. Vet. Science 3. Agr. Chem (3) 3.Org. Chem. (1,2) 3. Civil Eng. 3. Ext. Anatomy 3. Latin 3. Mechs. for Engineers (2,3) 4. Mathematics	1. Drawing 1. Elec. Eng. 1. Therapeutics (1,2) 1,2. Gen. Geology 2. Botany Lab. (Phar) 2. Drawing 2. German 2. Mech. Eng. 2. Mineralogy 3. Botany Lab. (Phar) 3. Histology 3. Latin 3. Zoology (3) 3. Mechs. for Engineers (2,3) 4. Mathematics	1. Botany (Agr.) 1. Drawing 1. Elec. Eng. 1. German 1. Infec. Dis. (1,2) 1. Milk Inspec. (3) 1,2. Gen. Geology 2. Drawing 2. Machine Design 2. Pharmacy 2. Theory of Arch. 2. Vet. Science 3. Agr. Chem. (3) 3. Civil Eng. 3. Exterior Anatomy 3. Latin 4. Mathematics	1. Soils (1,3) 3. Public Speaking Military Drill
1. An. Ind. Lab. 1. Bacteriology 1. Botany Lab. 1. Calculus 1. Elec. Eng. 1. Surgery (1,2) 2. Bacteriology (1,2) 2. Civil Eng. 2. Horticultural Lab. 2. Latin 2. Mining Eng. 2. Gen. Path. (2,3) 3. English 4. Chemistry	1. Agriculture 1. French 1. Mech. Eng. 1. Metallurgy 2. Botany (Agr.) 2. Civil Eng. 2. Elec. Eng. 2. Mach. D'sign (M.E.) 2. Mining Eng. 3. Desc. Geom. 3. Histology 3. Physiology 4. History	1. Botany Lab. 1. Calculus 1. Pharmacognosy 1. Soils 1. Vet. Medicine 2. An. Industry (3) 2. Civil Eng. 2. Elec. Eng. 2. Horticulture (1,2) 2. Latin 2. Mining Eng. 2. Surgery (3) 3. English 3. Histology 4. Chemistry	1. Forestry (2) 1. French 1. Horticulture (3) 1. Machine Design 1. Mech. Eng. 1. Metallurgy 1. Vet. Medicine 1. Vet. Science 2. Arch. History 2. Botany (Agr.) 2. Elec. Eng. 2. Civil Eng. 2. Mining Eng. 3. Botany Lab. (Phar) 3. Agriculture (2,3) 3. An. Ind. (1) 3. Histology 4. History	1. Calculus 1. Soils 1. Vet. Science 2. An. Ind (3) 2. Civil Eng. 2. Horticulture (1,2) 2. Latin 2. Machine Design 2. Mining Eng. 2. Vet. Medicine 3. English 4. Chemistry	1. Arch. Drawing 1. Eng. Chem. 1. Machine Design 1. Soils (1,3) 2. Arch. Drawing 2. Pharmacy
1. An. Ind. Lab. 1. Arch. Eng. 1. Bacteriology 1. Botany Lab. 1. Civil Eng. 1. Latin 1. Therapeutics (2,3) 2. Bacteriology (1,2) 2. Gen. Path. (2,3) 2. Physics 3. Botany Lab. (Agr.) 3. Surveying (2) 4. English	1. An. Industry 1. Civil Eng. 1. Elec. Eng. (Min., Mech.) 1. Botany 1. Horticulture 1. Meat Inspection 1. Pharmacognosy 1. Telephone Eng. 2. Agr. Geology (1,2) 2. French 2. Mach. Design 2. Spec. and Bld'g. Materials 3. An. Ind. 3. Agr. Chem. (3) 3. Ele. Mechanics (3) 3. History 4. English	1. Arch. Eng. 1. Botany Lab. 1. Civil Eng. 1. Eng. Contracts 1. Latin 1. Therapeutics (1,2) 2. Physics 1. Therapeutics (3) 3. Surveying (2) 3. Zoology (3) 4. English	1. An. Industry 1. Botany 1. Civil Eng. 1. Elec. Eng. (Min., Mech.) 1. Pharmacognosy 1. Telephone Eng. 1. Vet. Medicine 2. French 2. Practical Mach. 2. Agr. Geology (1,2) 2. Spec. and Bld. Mtls. 3. Ele. Mech. (3) 3. Agr. Chem. (3) 3. History 3. Histology 4. English	1. Latin 1. Arch. Eng. 1. Civil Eng. 1. Horticulture 1. Pharmacognosy 2. Obstetrics (1,2) 2. Physics 2. Therapeutics (3) 3. Bot. Lab. (Agr.) 3. Surveying (2) 4. English	1. Arch. Drawing 1. Machine Design 1. Soils (1,3) 1,2,3. Clinics 2. Arch. Drawing 3. Surveying (2,3) 3. Phys. Lab. Chemical Lab. Field Work Mechanic Arts Elec. Lab.
1. Botany 1. English (1) 1. Pol. Econ. (2,3) 2. Chem. Ind. and Org. 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 2. Vet. Medicine 3. Bot. Lab. (Agr.) 3. Arch. Drawing 3. Mech. Drawing 4. Agriculture (1) 4. Latin (2,3) 4. Mechanic Arts 4. Surveying (2,3)	1. Bacteriology 1. Entomology (1,3) 1. Mental Science 1. Physics 1. Phys. Chemistry 2. Agriculture (1,3) 2. An. Industry (2) 2. Chem. (Org.) 2. Mathematics 2. Pharmacognosy 3. Botany (Vet.) 3. Drawing (Arch.) 3. Drawing (Mech.) 3. Surveying (2,3) 1. Latin	1. Botany 1. English (1) 1. Pol. Econ. (2,3) 1. Therapeutics (Phar.) (3) 2. Chemistry (Ind.) 2. Chem. (Org.) (2) 2. Gen. Path. (2,3) 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 3. Botany 3. Ele. Mechanics (3) 3. History 4. Agriculture (3) 4. Surveying (2,3) 4. Mechanic Arts	1. Bacteriology 1. Botany (Agr.) 1. Physics 1. Phys. Chemistry 1. Mental Science 2. Agriculture (1,3) 2. An. Ind. (2) 2. Chemistry (Org.) 2. Mathematics 3. Botany (Vet.) 3. Desc. Geometry 3. Physiology 4. Latin	1. Military Science 2. Chemistry (Ind.) 2. Gen. Path. (2,3) 2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 3. Bot. Lab. (Agr.) 3. Drawing (Arch.) 3. Drawing (Mech.) 4. Latin 4. Mechanic Arts 4. Agriculture 4. Surveying (2,3)	1. Machine Design 1. Pharmaceutical Lab. 1,2,3. Clinics 3. Mechanic Arts 3. Phys. Lab. Chemical Lab. Elec. Lab. Field Work 3. Bot. Lab. (Phar.) 4. Mechanic Arts
1. Civil Eng. 1. Agriculture 1. Botany 1. Chemistry (Theo.) 1. Drawing (Arch.) 1. French 1. Meat Inspection 1. Mechanical Eng. 1. Mining Eng. 1. Pharmacy 2. Vet. Physiology 2. English 3. Mathematics 3. Surveying (2) 4. Drawing .4 Mechanic Arts	1. Forestry (2) 1. Geology 1. Mech. Eng. 1. Pharmacy 1. Therapeutics (1,2) 2. Arch. History 2. English 2. Vet. Physiology 3. Mathematics 3. Surveying (2,3) 4. Chemistry	1. Civil Eng. 1. Drawing (Arch.) 1. Entomology (1,3) 1. Mech. Eng. 1. Milk Inspec. (3) 1. Mining Eng. 1. Pharmacy 1. Spec. Path. (1,2) 2. Chem. (Analyt.) 2. German 2. Vet. Medicine 3. An. Industry 3. Mathematics 4. Drawing 4. Mechanic Arts.	1. Geology 1. Mech. Eng. 1. Meat Inspection 1. Pharmacy 2. English 2. Graphics 2. Vet. Medicine 3. An. Industry 3. Mathematics 3. Surveying (2) 4. Drawing	1. Civil Eng. 1. Botany 1. Drawing (Arch.) 1. Mech. Eng. 1. Dairy Farming (2) 1. Mining Eng. 1. Pharmacy 1. Surgery 1. Theoretical Chem. 2. Military Tactics 3. Histology 3. Zoology (3) 3. Mathematics 3. Surveying (2) 4. Drawing 4. Mechanic Arts	1,2,3. Clinics 3,4. Mechanic Arts Chemical Lab. Elec. Lab. Field Work
1. Civil Eng. 1. Struc. Des. (1,3) 1. Entomology (1,3) 1. Forestry (2) 1. Mech. Lab. 1. Toxicology (3) 1,2,3. Anatomy Lab. 1,2,3. Chem. Lab. 1,2. Clinics (1,2) 1,2. Drawing (Arch.) 1,2. Elec. Lab. 1,2. Field Work 1,2. Machine Work 2. Botany (Agr.) 2. Pharmacy 3. Botany 3. Desc. Geometry 3. Mechanic Arts 3. Phys. Lab. 4. Mechanic Arts	1. An. Ind. Lab. (2) 1. Horticultural (Lab) 2. Agriculture (1,3) 2. Botany (Agr.) (2) 2. Mineralogical Lab. 1,2,3. Anatomy 1,2. Clinics 1,2. Drawing (Arch.) 1,2. History 3. An. Ind. Lab. (1,2) 3. Mechanic Arts 3. Desc. Geometry 4. Mech. Arts Elec. Lab. Military Drill	1. Struc. Des. (1,3) 1. An. Ind. Lab. 1. Mech. Lab. 1. Toxicology (3) 1,2,3. Anatomy 1,2,3. Chem. Lab. 1,2. Clinics 1,2. Drawing (Arch.) 1,2. Field Work 1,2. Machine Work 2. Botany (Agr.) (1,3) 2. An. Ind. Lab. (2) 2. Horticultural Lab. 3. Botany 3. Desc. Geometry 3. Public Speaking 3. Mechanic Arts 3. Phys. Lab. 4. Mechanic Arts Elec. Lab. Work	1. Agriculture 1. Botany 1. Spec. and Bld. Mtls. 1. Telephone Lab. 1,2,3. Anatomy 1,2. Clinics 1,2. History 2. Elec. Lab. 2. Horticultural Lab. . 2. Mineralogical Lab, 3. Desc. Geometry 3. Mechanic Arts 3. Agr. Lab. (3) 4. Mechanic Arts Military Drill	1. Struct. Des. (1,3) 1. Horticultural Lab. 1. Machine Design 1. Mech. Lab. 1. Toxicology (3) 1,2,3. Anatomy 1,2,3. Chem. Lab. 1,2. Clinics 1,2,3. Field Work 1,2. Machine Work 2. Botanical Lab. 2. Drawing (Arch.) 2. French 2. Graphic Stat. (2: 3. Public Speaking 3. Mechanic Arts 3. Phys. Lab. 4. Mechanic Arts Elec. Laboratory	

Chapel Service daily 7:45 A. M.

Number prefixed denotes classes—1 denotes senior; 2 denotes junior, etc. Numbers affixed—(1), (2), (3), denote terms.

DESCRIPTION OF COURSES

ACADEMIC DEPARTMENTS

PHILOSOPHY AND POLITICAL ECONOMY.

PROFESSOR THACH.

The senior class pursue the study of intellectual science twice a week throughout the year, and political economy twice a week during the second and third terms. The instruction in this department is by lectures in combination with text-books.

1. Intellectual science: Psychology defined. Value in relation to moral culture, education, and natural sciences. The relation of the soul to matter. The arguments of the materialist. Counter arguments. The faculties of the soul. The nature of consciousness. Sense perception. Fancy. Imagination. Nature of conception. Language. Judgment. Reasoning. Deduction. Induction, etc. Porter's Intellectual Science. *Two hours, entire session.*

2. Political economy: Value; production of wealth; land; labor; capital; division of labor; distribution of wealth; wages; trades unions; tariff; education, etc. Lectures by professor. Ely's Outlines of Economics. *Two hours, second and third terms.*

ENGLISH.

PROFESSOR WANNAMAKER.
PROFESSOR WEBB.
PROFESSOR RUTLAND.
ASSISTANT LEACH.
ASSISTANT CAMPBELL.
ASSISTANT OWENS.
ASSISTANT WHITE.

The mastery of one's native language is a prerequisite to high attainment in any profession. In a technological institute, where only brief courses in foreign languages can be pursued by most of the students, this mastery of the native speech becomes, if possible, even more essential to future success than in the classical colleges. This consideration alone would justify compulsory courses in

English in technological institutions, but when we add to this the great cultural value of the study of language and literature, the wisdom of these compulsory courses becomes obvious. The courses in English comprise drill in grammar for freshmen who have not mastered that subject, study of the theory of composition together with much practice in its application, a survey of the history of American and English literature, and an intensive study of certain of the greatest periods and authors in English literature.

Requirements in English for admission are set forth on page 57. No student is classed as regular in any course till he has met these requirements.

The requirements as to thesis and as to proficiency in English for certificates and diplomas are set forth on pages 72 and 205.

The following courses are offered:

101. (a) A college course in English grammar: The department of English considers a thorough mastery of English grammar so essential to all students, that for the present this course will be required of all freshmen except those taking Latin. Any member of the freshman class may, however, take an examination in this part of the freshmen English courses and, if he passes satisfactorily, may be admitted to course 101 (c), which is not open to those who take 101 (a).

(b) A study of the origin and development of the English language: Textbook, Greenough and Kittredge's Words and their Ways in English Speech. *Two hours, third term.*

(c) An introductory course in the interpretation and appreciation of English poetry: Text-book, Palgrave's Golden Treasury. (Required of freshmen who pass in the examination on English grammar). *Two hours, first term.*

102. (a) The theory and practice of exposition: The principles of exposition, narration and description are studied. The students are required to apply these principles in set themes once a week and in frequent exercises. As often as possible the instructor holds personal conferences with students in order to correct, assist, and stimulate them. Text-book to be announced. *Two*

hours, first and second terms. For students who take Latin, *three hours, first term.*

(b) American literature: A survey of the history of American literature together with the study of select masterpieces. The recitations will be devoted chiefly to the discussion of the literature assigned for study, but the students will be required to master a concise history of the subject and to keep notes on both the history and the selections. Text-book, Newcomer's American Literature. *One hour, first term; three hours, second and third terms.*

103. The theory and practice of argumentation: This course deals with the principles of argumentation. Students are required to submit weekly themes in argumentative form, and to take part in oral debates, and the course is concluded with a lengthy argument based upon material collected in the library. Text-book, Pattee's Practical Argumentation. *Three hours, first term.*

104. English literature: This course consists in the interpretive study of selected poems and critical study of selected prose, illustrating the whole of English literature. The history of the literature is taught by means of the biographies of the chief writers, and lectures on the characteristics of the chief periods. The students are required to keep full notes. Text-books, Hinchman and Gummere's Lives of Great English Writers; Newcomer and Andrew's Twelve Centuries of English Poetry and Prose.

106. Public speaking: The sophomore class is heard weekly throughout the year, twice for an hour and a half in rehearsal, and afterwards in the assembly hall before the student body.

JUNIOR CLASS.

107. In the junior and senior years students pursuing the general course form a section separate from the rest of the class. This section is required to do a greater amount of reading and of written work than the technical students. Each student pursuing a technical course may elect one of the three following courses, but the department reserves the right to omit a course in case only a very small number elect it. The entire section of general-course students may elect one of the three courses.

(a) Nineteenth century literature: The first half-year will be devoted to the study of the leading prose writers of the last century, and the second half-year to the leading poets. A great proportion of the time will be given to Carlyle, Ruskin, Arnold, Dickens, Thackeray, George Eliot, Tennyson and Browning. Text-books, a history of nineteenth century literature, to be announced; Carlyle's Sartar Resartus, Heroes and Hero Worship, Hampshire's Selections from Ruskin, with notes; Arnold's Essays, Literary and Critical; Dickens' David Copperfield, Tale of Two Cities and Christmas Stories; Thackeray's Henry Esmond and Vanity Fair; Scott's Kenilworth; George Eliot's Mill on the Floss and Romola; Page's British Poets of the Nineteenth Century. *Three hours throughout the year.*

(b) English literature from 1750 to 1825: During the first term the origin and growth of the romantic movement will be studied and readings will be required from Gray, Goldsmith, Johnson, Burke, Cowper, Burns, Thomson and Collins. The origin of the novel will be briefly discussed, and one novel will be read from Fielding and Richardson each. The second and third terms will be devoted to a study of the romantic movement and close attention will be given to Wordsworth, Coleridge, DeQuincy, Lamb, Byron, Shelley, and Keats. Readings will be required from Scott, Jane, Austen, Hazlitt and Landor. Text-books, Phelps' Beginnings of the English Romantic Movement, Ward's English Poets, Vols. 3 and 4, Burke's Reflections on the French Revolution, Fielding's Tom Jones, Richardson's Clarissa Harlowe, DeQuincey's Confessions of an English Opium Eater, Lamb's Essays of Elia, Scott's Kenilworth, Jane Austen's Pride and Prejudice, Hazlitt's Lectures on the English Poets, Landor's Pericles and Hypatia. *Three hours throughout the year.*

(c) The essay and the novel: The first term will be devoted to a study of the origin and development of the English essay. Selected essays, representing the seventeenth and eighteenth centuries will be read, and much time will be devoted to the essay of the nineteenth century. The second and third terms will be devoted to the history of the novel. One novel will be studied from each of the following authors: Goldsmith, Jane Austen, Scott, Hawthorne, Charlotte Bronte, Dickens, Thackeray and George Eliot. The technique of the novel will be discussed in lectures. Each student will be required to report on one novel in addition to those read by the class. Text-books, the Everyman edition of A Century of English Essays; Cross's Development of the English Novel.

SENIOR CLASS.

Students pursuing the general course form a separate section. For technical students the following course is offered:

108. Shakespeare: The development of the English drama will be reviewed briefly through assigned reading, and lectures, and the life of Shakespeare will be included in the matter of the final examination, but the class room instruction will be devoted to the careful study of three of the plays. The technique of the drama is discussed with reference to these plays. Three additional plays are required for outside reading. Text-books, Neilson and Thorndyke's The Facts About Shakespeare; the plays of Julius Caesar, Macbeth, The Tempest, King Lear, Hamlet and the Midsummer Night's Dream. *Two hours, first term.*

For general-course students the following course is offered:

109. A brief study of Spenser, Bacon, Shakespeare and Milton: A careful study will be made of at least one book of The Faerie Queen, a volume of Bacon's Essays, two plays of Shakespeare, and two books of Paradise Lost. Reading will be assigned dealing with the literary history of the periods covered, with the lives of the writers named above, and with the technique of the drama. In connection with the study of the drama, specimens of morality plays, miracle plays, and the earliest comedies and tragedies will be read, and representative plays of Shakespeare's predecessors will be taken up in class. Text-books, Neilson and Thorndyke's, The Facts About Shakespeare; Macbeth, King Lear; Neilson's Chief Elizabethan Dramatists. Other texts to be announced.

110. Methods of teaching English: If a sufficient number of students apply to the head of the department, a course in methods of teaching English will be offered, the text-book and hours to be determined later.

GRADUATE STUDENTS.

The following courses have been given to graduate students:

(a) Shakespeare: Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV, Richard III, King John.

(b) Dryden's Poetical Works: Arnold's Dramatic Poesy, Yonge's Essay on Satire; Saintsbury's Dryden; Pope's Poetical Works; Pattison's Satire; Stephen's Pope; Gosse's From Shakespeare to Pope; and Eighteenth Century Literature.

(c) English literature of the eighteenth century: Addison, Pope, Gray, Goldsmith, Burns, Cowper, and Burke.

(d) American literature: Longfellow, Lowell, Poe.

(e) The English essay: Bacon, Addison, Steele, Swift, Johnson, Goldsmith, Macaulay, DeQuincey, Lamb, Carlyle.

(f) Milton's Poetical Works: Life, Pattison, Brooke.

(g) Elizabethan, Jacobean and Caroline literature; Greene, Jonson, Marlowe, Webster, Beaumont, and Fletcher, Brown, Herrick, Bunyan and others.

(h) English literature, 1832-1894.

(i) Chaucer.

(j) English prose fiction.

For the year 1915-16, one of the following courses may be elected by the graduate class:

Anglo-Saxon: A study of the grammar and phonology of Anglo-Saxon, together with the reading of select prose and verse. The class will probably read a portion of Beowulf.

Chaucer: A study of the life and times of Chaucer together with the readings and critical study of a large portion of his collected writings.

Prose fiction: A study of the development of English fiction with special emphasis upon the modern novel.

Shakespeare: A critical study of the dramatist's art.

HISTORY AND LATIN.

PROFESSOR PETRIE.
INSTRUCTOR OWSLEY.
INSTRUCTOR REYNOLDS.
ASSISTANT SHARP.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements, and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Instruction is given by text-books, lectures and class discussion, but a constant effort is made to stimulate to wider reading and research in the library. The following courses are offered:

FRESHMAN CLASS.

201. Industrial and constitutional history of the United States: The course consists of lectures and text-book work, and is somewhat advanced. All students who take it must have previously completed some high school text-book on the history of the United States. Text-books: Hart's Formation of the Union; Wilson's Division and Reunion. *Two hours, entire session.*

SOPHOMORE CLASS.

202. History of Modern Europe: Required of all members of the sophomore class. Some previous knowledge of the subject is desirable, but not necessary. Text-book, Robinson and Beard's Development of Modern Europe. *Three hours, first and second terms.*

203. Ancient history: An extra course intended for those who are deficient on this subject. *Lectures once a week, one term.*

204. A brief course in recent history: Not required of any students, but those who expect to take the

general course may take this work. Text-books: Robinson and Beard's Development of Modern Europe and current periodicals. *Three times a week, third term.*

SENIOR CLASS.

205. English constitutional history: A course for one year for members of the senior class. Text-book will be announced later.

JUNIOR AND SENIOR CLASSES.

206. Historical laboratory: An opportunity for advanced work in United States history, for those students of the general course who elect it as laboratory work, and for any others who are properly qualified.

The chief object kept in view is training in historical research and in the formation of independent but careful opinions based on the original sources of information, as well as on the standard authorities. Emphasis is laid on the importance of securing proper material for investigation, and every incentive is given to the collection and use of new documents, papers, and letters illustrative of Southern and especially of Alabama history. The method of work is as follows: Informal lectures are given on important and suggestive points, as: The cause of the Revolution; the Constitutional Convention; the War of 1812; the Missouri Compromise; the Monroe Doctrine; Texas and Mexico; the Compromise of 1850; the Kansas Struggle; the Dred Scott Decision; Secession. After each lecture a general discussion follows, and topics connected with it are assigned to the students with an outline of the points to be investigated. The final results are collected by each student according to his own judgment in his note-book, which is then passed in to the professor for correction and suggestion. Text-book: McDonald's Select Statutes. *Six hours, entire session.*

International Law: A brief course is offered for those students who expect to enter the army or navy. *One hour a week.*

GRADUATE COURSE.

207. Graduate students are expected to take part in the junior and senior discussions, and will also meet with the professor for conference about their work. Each

year some special field is taken for investigation and discussion. Those who take history as their major study are expected to devote a large part of their time to research upon some topic upon which they can consult the original sources of information.

208. Teacher's course: Conferences every other week with those students who expect to teach history.

LATIN.

The objects kept in view in this department are: An accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives, an appreciation of Latin literature and an intelligent conception of Roman history and civilization, both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation. English passages based on a familiar author or illustrative of special constructions are put in Latin, both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class, a course of reading in English is prescribed descriptive of his life, work and times. The historical setting and the literary value of his writings are carefully discussed and frequent comparisons are made with modern authors.

In the freshman and sophomore classes the study of the language is the chief point. In the higher classes a broader view is taken. The junior class makes a special study of Roman history and Roman historians. The senior class studies Roman poetry and Roman life.

In the senior class a brief pedagogical course is given during the third term for those who expect to be teachers of Latin. This includes work on the forms and syntax, and in Caesar and Virgil.

The following courses are offered with the text-books named:

209. Freshman class: Exercises, Cicero, Sallust, or equivalent. Allen and Greenough's Latin Grammar.

Four hours, first and second terms; three hours, third term.

210. Sophomore class: Livy. Allen and Greenough's Grammar, Bennett's Latin Composition. *Five hours, entire year.*

211. Junior class: Livy, Tacitus, grammar, Roman history, exercises. Allen and Greenough's Grammar, Botsford's History of Rome. *Three hours, entire year.*

212. Senior class: Horace, Plautus, Latin literature, grammar. Allen and Greenough's Grammar. *Three hours, entire year.*

213. Pedagogical course: During the spring term a pedagogical course is given in Latin. It is designed chiefly, but not exclusively, for members of the senior class. It includes a discussion of the methods of teaching forms and syntax, as well as concrete illustrations of the way to overcome the difficulties in Caesar and Virgil.

MODERN LANGUAGES.

PROFESSOR WIATT.

The chief aim in this department is to give the student a thorough and accurate knowledge of the elementary principles of the subjects taught, and to enable him to read with facility the ordinary French and German at sight. To train the ear, acquire a correct pronunciation and some facility in speaking, all recitations are supplemented, as far as practicable, by oral exercises in the languages themselves.

Opportunity for the study of Spanish is given students who elect that language.

FRENCH.

JUNIOR CLASS.

301. (a) A course covering the essentials of grammar and pronunciation to enable the student to begin the reading of simple French prose. This course continues through the first term, three hours a week being given to the study of grammar and one hour to pronunciation and conversation. *Four hours, first term.*

(b) The second term includes a course of reading in simple prose (2 hours a week), and the continuation of grammar with translations of English into French (1 hour a week). *Three hours, second term.*

(c) During the third term the reading of more advanced selections in prose and poetry is begun (2 hours a week), grammar and composition (1 hour a week); and pronunciation and conversation (1 hour a week). *Four hours, third term.*

SENIOR CLASS.

302. (a) A course in reading: Corneille and modern French plays (2 hours a week); laws of grammar and composition (1 hour a week); pronunciation and conversation (1 hour a week). *Four hours, first term.*

(b) The second term is given to the study of Racine, and the reading of modern French literature (2 hours a week) and to continued study of the structure and syntactical features of the languages in connection with translations into French. *Three hours, second term.*

(c). The third term includes a study of Moliere (1 hour a week); the history of French literature (1 hour a week); more advanced work in grammar and composition (1 hour a week); and pronunciation and conversation (1 hour a week). *Four hours, third term.*

303. Teachers' course: During the spring term the work of the senior class will be so modified or supplemented, as to include a short pedagogical course for students who expect to teach French. This will consist chiefly of elementary work in grammar and syntax and a study of the best methods of giving instruction in this subject. *Third term, senior year.*

GRADUATE STUDENTS.

304. Graduate course: Offered for students who wish to pursue the study of French beyond the scope to which a two-year course necessarily limits them. In addition to the authors studied in the lecture room, a wide and extensive reading of literature is prescribed.

TEXT-BOOKS.

First Year: Frazer and Squair's Shorter French Course; Francois and Giroud's Simple French.

Second Year: Corneille, Racine, Moliere, selected modern French plays, Duval's Histoire de la Literature Francaise; Frazer and Squair's French Grammar, French Composition.

GERMAN.

The following regular courses are given:

JUNIOR CLASS.

305. (a) A course embracing the fundamental principles of grammar and the essentials of pronunciation leading to the intelligent reading and translation of simple German texts (3 hours a week), and exercises in pronunciation and conversation (1 hour a week). *Four hours, first term.*

(b) In the second term the reading of simple prose is begun (2 hours a week), and grammar and composition continued (1 hour a week). *Three hours, second term.*

(c) Reading of more difficult selections of prose and poetry is begun and continued throughout the third term (2 hours a week). Grammar and composition continued (1 hour a week), and conversational exercises (1 hour a week). *Four hours, third term.*

SENIOR CLASS.

306. (a) A course of reading in modern German (2 hours a week); structure and syntax of the language with translations into German (1 hour a week); conversation (1 hour a week). *Four hours, first term.*

(b) Schiller (2 hours a week); History of German literature and composition (1 hour a week). *Three hours, second term.*

(c) German lyrics and ballads (2 hours a week). German literature (1 hour a week), composition and conversation (1 hour a week). *Four hours, third term.*

307. A course for students from the scientific schools, including readings of various scientific subjects, selected to meet the requirements of the class (2 hours a week), grammar and composition (1 hour a week) and conversation (1 hour a week). *Four hours, entire session.*

308. Teachers' course: During the third term in the senior class of German, the course will be so modified, or supplemented, as to include a short pedagogical course for those students who expect to become teachers of this language. This will consist chiefly of elementary work in grammar and syntax, and a study of the best methods of giving instruction in the subject.

GRADUATE STUDENTS.

309. Advanced course: For those students who wish to pursue the study of German beyond the scope to which a two-year course necessarily limits them. Here, in addition to the authors studied in the lecture room, a wide and extensive reading of authors and literature is prescribed.

TEXT-BOOKS.

First Year: Wesselhoeft's German Grammar, Carruth's German Reader.

Second Year: Schiller, Lessing, selected modern German plays, German lyrics, Bernhardt's Deutsche Litteraturgeschichte, Joynes-Meissner's German Grammar, German Composition.

MATHEMATICS.

PROFESSOR CRENSHAW.
PROFESSOR MESSICK.
ASSOCIATE PROFESSOR SHI.
INSTRUCTOR PATRICK.
INSTRUCTOR STOKES.
INSTRUCTOR DONAHUE.
ASSISTANT PITTS.

The courses of instruction offered in this department are designed to give the student that mental discipline and training in logic which will enable him to think and reason logically; as well as a thorough knowledge of the principles and formulas of pure mathematics and their practical applications in the engineering and other scientific professions.

The courses offered in the different classes in this department are as follows:

FRESHMAN CLASS.

401. Plane Trigonometry. *Five hours, first term.*

402. Advanced Algebra. *Five hours, second and third terms.*

SOPHOMORE CLASS.

403. Analytic Geometry: *Five hours, first and second terms.*

404. Introductory Course in Calculus: *Five hours, third term.*

JUNIOR CLASS.

405. Calculus: *Five hours, entire year.*

GRADUATE STUDENTS.

407. Differential Equations: *Two hours, entire year.*

408. Methods of teaching mathematics: The department offers a course designed for teachers of elementary mathematics, or for those who expect to make this their profession. The elementary branches of mathematics will be reviewed and methods of teaching briefly discussed, keeping constantly in view the co-ordination of the lower branches with the higher. The course will include also a brief *resume* of the history of the elementary subjects, a critical examination of the extant text-books; and finally, an outline of a course of study in advanced mathematics to be pursued by the teacher.

409. Projective Geometry: This course, which aims to present the elements of the subject, will be offered to seniors and graduate students in architecture and engineering and to those properly equipped who wish to pursue the subject of mathematics. *Hours to be arranged, third term.*

TEXT-BOOKS.

Wentworth-Smith's Trigonometry; Reitz and Crathorne's Algebra; Tanner and Allen's Analytic Geometry; Granville's Calculus; Cohen's Differential Equations.

PHYSICS.

ACTING PROFESSOR DUNSTAN.

INSTRUCTOR RIDDLE.

The complete course of physics extends over three years and is designed to give as far as possible an adequate and correct idea of the method of physical science and to lay the foundation for subsequent advanced work if (as must often be the case, especially in an institution such as this) the student desires to pursue the subject further or intends to engage in any of the great engineering professions of which physics is so important a basis.

The lectures are illustrated by experiments; the students are required to work numerous problems and exercises.

SOPHOMORE CLASS.

502. This is a laboratory course, and deemed especially important for students of engineering, and of great advantage to such as intend to pursue the subsequent higher work in this department. The laboratory exercises are carefully selected, being designed to illustrate the fundamental methods and principles of physics, and, although the work is necessarily more or less elementary, at the same time such accuracy and precision as the conditions admit of are insisted upon, so that the student is expected to acquire a fairly correct idea of modern experimental investigation. The exercises consist of the fundamental measurements of length, mass, density, moduluses of elasticity, pendulum experiments, etc., together with a few more advanced experiments in connection with the similar properties of liquids and gases, and the general phenomena of heat and sound. The student is required to write a careful report of such experiments, entering the results of observation in tabular form, and plotting a curve wherever practicable; also describing the object, apparatus, and method, and noting sources of errors, etc. Great stress is laid upon this requirement, and reports are not accepted unless they indicate that the student has done his best in every way. *Two hours, entire year.*

JUNIOR CLASS.

504. This is a more advanced course in general physics required of all candidates for a degree. The only preparation needed is a good working knowledge of mathematics through plane trigonometry. The course includes a series of illustrated lectures on the principles of dynamics, as applied to solids, liquids, gases, sound and heat, in the order named. Written exercises are required each week. This course will be required of all students in the sophomore class in session 1916-1917. (Text-book to be announced later). *Three hours, entire session.*

SENIOR CLASS.

505. This course, although more advanced than the junior course, and occasionally employing the higher

mathematics, is a continuation of the work of the previous year. It might be called a course in elementary mathematical physics, and the subjects varying from year to year, that are treated in the lectures are such branches of physics as kinematics and dynamics, thermodynamics, electricity and magnetism, geometrical and physical optics, etc. The student is encouraged to solve difficulties for himself, and to read the standard treatises and original memoirs on the various topics that come under discussion. *Two hours, first and second terms.*

506. Astronomy: A brief course of lectures in descriptive astronomy. *Two hours, third term.*

(The text-books in this class vary with the changing subjects, and will be announced by the professor each year).

507. Teachers' course: In the spring term a course will be offered for those members of the senior class who expect to teach physics. Methods of teaching the theory will be discussed and practical training will be given in the use of the laboratory for school purposes.

GRADUATE STUDENTS.

508. Physics and mechanics: This course will be designed to meet the needs of the students who take it. It will include both theoretical and experimental work in more advanced mathematical physics, or in analytical mechanics.

MILITARY SCIENCE AND TACTICS.

Col. B. S. Patrick, *Commandant.*

Military science and tactics are required by law to be taught in this institution. The law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the school of the soldier, of the company, and of the battalion in close and extended order, in guard mounting, inspection, parades, reviews, etc.

Under section 1225, U. S. Revised Statutes, the college is provided with U. S. magazine rifle, calibre 30, model 1898, and accoutrements.

The following uniform of standard cadet gray cloth has been prescribed for dress; coat and trousers as worn for fatigue at West Point, with dark blue cadet cap. A neat and serviceable uniform can be obtained for fourteen dollars. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is organized as a regiment of two battalions. The officers are selected for military efficiency, good conduct and scholarship. The commissioned officers will be selected from either the senior or the junior class, and promotion will depend on merit and not wholly on seniority.

A band composed of cadets furnishes appropriate music at all reviews and parades and on other special occasions.

A student who has once accepted an office cannot resign it except for reasons entirely satisfactory to the president and the commandant. The resignation of an office will usually not be considered without first placing all the circumstances to the case before his parent or guardian.

Candidates for appointment or promotion may be required to stand an examination. Moral fitness, including demerits, will be considered.

Each company is officered by one captain and two first lieutenants, one second lieutenant, and a proper number of non-commissioned officers. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the president on the nomination of the commandant.

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant-General of the U. S. Army and to the Adjutant-General of their respective States.

The theoretical course in military science and tactics is begun in the junior and continued throughout the senior year.

The following are the courses prescribed:

600. Military drill: Required of all freshmen, sophomores, and juniors not physically incapacitated to bear arms. *Three hours, entire year.*

JUNIOR CLASS.

601. Infantry drill regulations. *One hour, first and second terms.*

602. Firing regulations for small arms. *One hour, third term.*

SENIOR CLASS.

603. Security and information (Wagner): *One hour, half first term.*

604. Field service regulations: *One hour, half first term and second term.*

605. Manual of guard duty: *One hour, third term.*

EDUCATION

PROFESSOR TO BE ANNOUNCED.

The purpose of the courses in this department is to provide professional training of teachers. These courses cover three years of professional work, beginning with the sophomore year, in connection with the regular undergraduate work. Graduates in any course who have taken the specified number of professional courses are eligible, without further examination, to teach and to supervise special and technical subjects in the district agricultural schools, high schools and other schools of equal rank in the State of Alabama.

The special field of this institution is the preparation of teachers of manual training, agriculture, and the natural sciences. In fitting students for this work several departments of the institution co-operate with the Department of Education by giving courses in special methods. Care is taken to adapt the instruction to conditions that prevail in Alabama and the South.

A minimum of six hours of professional studies per week for the year 1915-16, seven hours for 1916-17, and nine hours thereafter, is required by the State Board of Examiners as a basis for the issuance of life-grade certificates to graduates of this institution and other higher institutions of learning.

There is a growing conviction among the leading educators that the best institution in which to train teachers of vocational subjects is a well-equipped technical college, where the courses of study are directed towards the productive vocations. The Alabama Polytechnic Institute is such an institution.

Each year there is an increasing demand for trained teachers of agriculture, shop-work, and home economics. The College has not been able to supply this demand. The Department of Education offers an opportunity for teachers to prepare themselves to meet the new demands placed upon the public schools, viz., preparing the boys and girls for vocational and social efficiency.

The following courses are offered:

General Psychology: General introduction to the forms and laws of common experience as based on a knowledge of the physiological conditions of mental life. The work of the course will include the study of a text, outside readings, lectures and class experiments. *Three hours, first term.*

Educational Psychology: The application of the facts and principles of psychology to teaching; a study of the growth of the child mind and the relations of the various periods to educational organization; adaptation of courses of instruction, methods of teaching, discipline, and general school activities to the stages of the pupil's development; lectures, recitations, reports, and simple investigations. *Two hours, second and third terms.*

History and Principles of Education: This course is intended to present the successive relationships that have existed between educational machinery and practices, and the changing political, economic, scientific, cultural, and ideal environments from primitive times to the present. *Three hours, second and third terms.*

School Hygiene: This course includes a study of the school plant and equipment from the viewpoint of the mental and physical hygiene of the child; the tests for revealing the mental and physical defects of school children; standard tests for mental measurements; school diseases and preventive measures. *Two hours, second and third terms.*

School Supervision and Administration: The course is required of students preparing to become principals or superintendents of schools, and recommended to those who desire a comprehensive survey of the system of elementary and secondary education. It treats of the work of principals, superintendents and school boards; supervision of instruction, classification and discipline; current problems in school administration; school buildings and hygiene. *Two hours, first term.*

The Art of Study: The purpose of the course is to cause prospective teachers to give reflective attention to methods of procedure in study and learning, to the end that their own methods may be improved and that their future pupils may be guided aright in the practice of this most important art. *One hour, entire session.*

High School Education: A study of the secondary school, its development, organization, courses of study, methods of teaching and administration including a comparison with secondary schools in leading foreign countries. *One hour, entire session.*

Sociology and Philosophy: An elementary study of society, social problems, the social function of education. Special attention will be given to the study of rural conditions and constructive programme of betterment. *Three hours, entire session.*

SPECIAL METHODS FOR TEACHERS.

The courses described below are practical courses in the methods of instruction and are designed especially for teachers in Alabama schools and for those students who expect to teach after leaving college. They are given under the direction of the various departments by instructors who have had extensive experience in teaching and who are familiar with the existing conditions in the schools in the state. While in a few of the courses the instruction consists mainly of the study of texts on methods and lectures and discussions on methods of teaching specific subjects, in most of them the subject matter as well as the method is given. If there is sufficient demand, any department of the college will offer courses which may be carried on without the formal attention of the professor, in which the reading work will be outlined and supplemented by conferences from time to time. The following courses are offered:

701. English: This course is planned especially to suit the needs of those who are now teaching English in elementary or secondary schools and those who expect to become teachers of English. It will include discussions

of the existing needs in Alabama schools, general instruction in methods of study and presentation of literature, and lectures on practical methods of teaching grammar and composition, together with actual work in this subject. It will also be the purpose of the course to examine various text-books available for instruction in English and to put the student in touch with such books as he will find useful in his work and in his own development. *Two hours, third term.*—PROFESSOR WANNAMAKER, PROFESSOR WEBB, PROFESSOR RUTLAND.

702. History: For those who expect to teach history a conference is held once every two weeks. The chief purpose is to obtain a clear understanding of the practical difficulties that confront teachers of history and to suggest the best ways to meet them. The discussions deal with both American and European history. —PROFESSOR PETRIE.

703. Latin: During the spring term a pedagogical course is given in Latin. It is designed chiefly, but not exclusively, for members of the senior class. It includes a discussion of methods of teaching forms and syntax, as well as concrete illustration of the ways to overcome difficulties in Caesar and Virgil.—PROFESSOR PETRIE.

704. French and German: During the third term in the senior class of French and German, the courses will be so modified or supplemented, as to include a short pedagogical course for those students who expect to become teachers of these languages. This will consist chiefly of elementary work in grammar and syntax and a study of the best methods of giving instruction in these subjects. *Third term.*—PROFESSOR WIATT.

705. Mathematics: The department of mathematics offers a course designed for teachers of elementary mathematics, or for those who expect to make this their profession. The elementary branches of mathematics will be reviewed with especial attention to those portions presenting unusual difficulties to beginners, or which deserve emphasis on account of their importance. Methods of teaching will be briefly discussed, and the course will keep constantly in view the co-ordination of the lower branches with the higher. It will include also

a brief *resume* of the history of the elementary subjects; a critical examination of the extant text-books; and finally an outline of a course of study in advanced mathematics to be pursued by the teacher. *The hours will be arranged later.*—PROFESSOR CRENSHAW.

706. Physics: In the spring term a course will be offered for those members of the senior class who expect to teach physics. Methods of teaching the theory will be discussed and practical training will be given in the use of the laboratory for school purposes.

707. Library methods: The course offered by the library will have for its object the training of teachers in the formation, care, and use of a school library. Elementary instruction in the principles of dictionary cataloguing and of the decimal classification will be given, followed by a detailed study of reference books, together with practical problems worked out in the library. In addition there will be lectures on library organization and equipment, the routine work of a small library, and the selection and ordering of books. *Hours to be arranged.*—MISS MARTIN.

708. Manual training: Courses in elementary wood work and iron work are offered. These courses will be adapted as far as possible to the individual needs of those taking the courses and in addition to the shop work will include lectures and conferences on the organization of courses and the equipment of shops for manual training. *Hours to be arranged.*—PROFESSOR WILMORE.

709. Physical Geography: In the course in general geology will be found much that is especially applicable to physical geography. It takes up a study of subterranean and surface agencies both as to their destructive and constructive processes. The results of these processes are then taken up in a study of the topography of the surface of the earth under the following heads: The geographic cycle; land sculpture; topography as determined by faults and joints; adjustment of rivers; seacoasts; mountain ranges. *Two hours, first and second terms.*—PROFESSOR BROWN.

710. Drawing and Descriptive Geometry: A course in the methods of teaching drawing and descriptive

geometry is given to those who wish to prepare for teaching these branches. This course includes advanced work in the form of problems, supplemented by frequent conferences with the instructor, a full bibliography of works on the subjects, and an extended course in reading. Those who desire to avail themselves of an opportunity to practice the teaching of the subjects, may be permitted to attend the meetings of the larger classes in elementary work for the purpose of observing methods of teaching. Those who show sufficient preparation may be allowed to assist in tutoring delinquent students and those who enter conditioned. Special attention is given to the subject of drawing as taught in high school work. —PROFESSOR FULLAN.

711. Chemistry: In this course, students who have had the necessary preliminary work in chemistry will be afforded the opportunity of taking laboratory practice in experimental chemistry for lecture purposes and for the purpose of the practical study of methods of handling classes in experimental laboratory work. Advanced students can also take the course in history of chemistry, which is provided in the senior year of the course in chemistry and metallurgy. *Hours to be arranged.*—PROFESSOR ROSS.

713. Agriculture: Methods of teaching agriculture. This is a course of lectures and laboratory and field exercises intended to meet the needs of those who expect to teach agriculture or nature study in the common schools and agriculture in the high schools. Special attention is given to plans for school gardens and the selection of material for illustrating the principles of agriculture, and practice will be given in conducting a number of simple demonstrations. Frequent excursions will be made to the fields.

Teachers and those who are preparing to teach are advised to take as many of the courses in agriculture as their time permits. It is especially desirable that those intending to take the teachers' course shall have previously taken *Agriculture* 203, or its equivalent. *Lectures and laboratory, one hour each, third term.*—PROFESSOR DUGGAR.

714. Physiology and Hygiene: The department of physiology and veterinary medicine can give the follow-

ing courses of instruction to prospective Alabama teachers.

(a) Structure of human body and animals.

(1) Study of cells, tissues and organs.

(2) How to use the smaller animals in taking naked eye anatomy.

(b) Physiological actions of the different parts and products of the animal and the human body. This embodies:

(1) Functional tests.

(2) Chemico-physiological tests.

(3) Physico-physiological tests.

(c) Hygiene, embracing instruction in personal health problems.

(d) Sanitation, including health conditions of cities, homes, public buildings, farms, barns, dairies, etc.

(e) Care of animals on the farm and in the city.—PROFESSOR CARY.

715. Horticulture and School Gardening: This course embraces instruction in nature study, the use of school gardens, and elementary landscape gardening. Though the course is largely practical in its nature, much attention is given to the methods of teaching elementary horticulture, the use of texts, and experiments suitable for elementary and high school grades. *Hours to be arranged.*—PROFESSOR WALKER.

COLLEGE OF ENGINEERING AND MINES

CIVIL ENGINEERING.

PROFESSOR MITCHAM.
ASSISTANT PROFESSOR STELZENMULLER.
ASSISTANT TICKNOR.

FRESHMAN CLASS.

101. Plane surveying and levelling: A short course for students in agriculture. Instruction will be given in the use, care, and adjustment of instruments; determination of true meridian and magnetic declination; U. S. public land surveys; farm surveying by various methods; plotting and computing areas; dividing land; differential levelling; profile levelling; terracing; and drainage surveys. *Lectures and recitations, three hours, second term; field practice two hours, second and third terms.*

102. Plane surveying and levelling: A longer course required of all engineering students. Instruction will be given in the use, care, and adjustment of instruments; standardizing tapes; determination of true meridian and magnetic declination; U. S. Public Land Surveys; methods of retracing old lines; farm surveys by various methods; plotting and calculating areas; dividing lands; surveying and mapping existing roads and streets; laying out townsites and establishing permanent monuments for same; differential levelling; profile levelling, construction of profiles and establishing grades; cross-section levelling; calculation of volumes of excavation and embankment; terracing; staking out and giving grades for sewers, ditches, and drains; staking out buildings, etc. *Lectures and recitations three hours, field practice two hours, second term.*

103. Higher surveying: Required of all engineering students. Instruction will cover topographic surveying by various methods; hydrographic surveying; mining surveying; city surveying; geodetic surveying; and projection of maps. *Lectures and recitations three hours, field practice two hours, third term.*

SOPHOMORE CLASS.

During the session 1915-16, course 101 will be required of sophomores in agriculture, and course 102 will be required of all engineering students in the first term; course 103 will be required of sophomores in civil and mining engineering in the second term, and course 104 in the third term.

104. Railway surveying: Required of students pursuing courses in civil and mining engineering. Instruction will cover preliminary surveys; theory of simple, reversed, and compound curves; transition curves; railway grades; vertical curves; construction surveys; calculation of quantities involved in railway construction. *Three hours recitations and two hours practice, first term, session 1916-1917.*

JUNIOR CLASS.

106. Railway surveying: A course in field and office practice covering problems in location; fixing grades with reference to economy in construction and operation; approximate estimates of quantities from profiles; cross-sectioning and calculating of excavation and embankment; calculation of overhaul; borrow pits; planning, and staking out railway structures. *Six hours, first term.*

107. Roads and pavements: A course of lectures and recitations covering economic principles involved in road improvement; analysis of resistance to traction; location, grades, and drainage of new roads; relocation and improvement of existing roads; construction of earth, gravel, macadam, concrete, brick, and bituminous roads, with study of properties of the various materials used in road construction, the methods employed in testing them, and the best specifications for constructing roads with the several materials; street plans of cities and towns; width and grades of streets; curbs and gutters; construction of various kinds of street pavements; storm drainage systems for cities; and construction of sidewalks. *Five hours, first term.*

108. Road materials laboratory: The study and testing of various materials used in the construction of roads and pavements. The purpose of the course is to allow the student an opportunity of becoming familiar with the physical properties, relative merits, and methods of testing the various materials rather than to have him per-

form exhaustive research work. *Three hours, second term.*

109. Road and street improvement: A practical field and office course in making surveys, plans, and estimates for road and street improvements. *Six hours, third term.*

111. Graphic statics: A course of lectures and drafting room exercises covering fundamental principles of equilibrium; composition and resolution of forces; the equilibrium polygon; graphical determination of stresses in trusses and framed structures; bending moments and shears in beams; center of gravity of given sections; moment of inertia. *Lectures two hours, drafting three hours, second term.*

112. Structural drafting: The purpose of this course is to acquaint the student with the details of structural steel work, to train him in the neat and accurate execution of drawings, and to teach him in a practical way to solve some of the simpler problems in structural mechanics *Five hours entire session.*

SENIOR CLASS.

113. Theory of structures: The purpose of this course is to teach the fundamental theories underlying the design of bridges, roofs, and other framed structures of metal and timber. The discussions cover determination of outer and inner forces acting on the structure; concentrated live load systems; design of beams, plate girders, simple trusses, bridge trusses with secondary web systems, lateral and portal bracing, transverse bents, viaduct towers, cantilever bridges, three-hinged arches. *Five hours, first term.*

114. Structural design: This is a drafting room course in the practice of bridge and structural design, and is the complement of course 113. Complete designs are worked out for a number of structures. *Nine hours, first and third terms.*

115. Railroad engineering: The discussions cover the inception, promotion, and organization of railroad projects; organization and construction; the duties of the engineer; alignment and grades; rails and rail fastenings; cross ties; ballast and roadbed; culverts; bridges, and minor structures; turnouts; sidetracks and yards; terminals; elevation of outer rail; signalling; the locomotive and its work; locomotive and grade problems; railroad expenditures; relation of operating expenses to number

of trains; effect of rise and fall, distance, and curvature to train mile costs; railroad location, construction, and betterment surveys. *Three hours, first term.*

116. Theoretical hydraulics: The discussions cover fluid pressures; equilibrium of floating bodies; fundamental principles of hydro-mechanics; methods of measuring the flow of water; Pitot tube; Venturi meter; orifices; tubes; sluices; wiers; nozzles; fire hose; flow in open channels, sewers, conduits, etc; flow in pipes; dynamic action of flowing water; impulse wheels; turbines of various types; centrifugal pumps. *Five hours, second term.*

117. Practical hydraulics: This course is the complement of course 116, and its purpose is to bring the student into close touch with practical hydraulics. The work includes the determination of coefficients of orifices, tubes, and nozzles, determining loss of head in pipes and fire hose; measurement of water by wiers and meters; testing meters and pumps; gauging streams with current meter; visits of inspection to hydro-electric power plants under construction and in operation and reports on same. *Three hours, third term.*

118. Concrete and masonry construction: Discussions cover mathematical theories underlying the design of reinforced concrete beams, columns, slabs and arches; cements, limes and mortars; methods of mixing and placing plain and reinforced concrete; classification and properties of building stones; definition and construction of various classes of stone masonry; manufacture of brick; brick work; stone and brick arches; retaining walls; piers and abutments; shallow foundations; coffer dams; crib foundations; pile foundations; pneumatic caissons; the freezing process; cylinder piers. *Three hours, second and third terms.*

119. Sanitary engineering: The discussions cover the history of sanitary science; sanitary measures necessary for the prevention of zymotic diseases; the engineer's part in the campaign for the prevention of disease; the sources of water supply, its collection, purification, and distribution; sewerage, and sewerage design; sewage disposal; construction of sewers; pumping of sewage; sewage treatment plant; sewage farms; collection and disposal of garbage and rubbish; street cleaning. *Five hours, third term.*

120. Thesis: Each candidate for a degree in civil

engineering is required to prepare a thesis upon some engineering subject which he may select. It must be the record of original investigation of some engineering subject or an original design of some engineering structure or project. The applicant for a degree shall file a written announcement of his subject with the professor of civil engineering not later than October 1st of his senior year; and the thesis shall be completed and submitted for approval not later than April 15th. During the first term the candidate shall devote not less than four hours a week to reading and collecting data for his thesis; and during the second term he shall devote not less than nine hours a week to work on his thesis. He shall submit on Monday morning of each week a written statement of the time he has devoted to thesis work during the preceding week.

SUMMER CAMP AND SCHOOL OF SURVEYING.

105. Practical work in plane and higher surveying supplementing the instruction given in courses 102 and 103: This work is given at the summer camp immediately after commencement, and may be taken between freshman and sophomore years, or between sophomore and junior years. The purpose of this course is to give the student uninterrupted practice in the solution of practical problems in surveying similar to those which he will meet early in his career as an engineer; and the course is in line with the policy of the institute to combine theory and practice in all its branches of technical instruction. Students in this course are required to make notes of all the work done by the party to which he is assigned and to compute and plot all surveys made by his party. The parties will be made as small as the conditions to the work will permit so as to give each student the greatest possible amount of practice with the instruments. This course is required of all students who are candidates for graduation in civil, or mining engineering, and requires *forty-eight hours per week for four weeks.*

110. Practical work in railway, highway, and hydrographic surveying: This course is also given in the summer camp, and is required of all students who are candidates for graduation in civil or mining engineering, and will be taken between junior and senior years. The work includes the preliminary location and construction, sur-

veys for a short line of railroad, (about 2 miles), with maps, profiles, and estimates for same; all surveys, maps, profiles and estimates for a short line of highway, (about 2 miles); surveys for a dam and lake formed thereby; also gauging of stream flow with current meter. The time required for this course is *four weeks, forty-eight hours per week.*

The Institute furnishes tents, cots, camp stools, and all equipment of mess tents. The student will furnish his own bedding, soap and towels. A charge of $16.00, payable in advance, will be made for each course and will be applied to payment of the expense of the camp.

GRADUATE STUDENTS.

121. Graduate engineering course: This course requires three hours a week to be devoted to recitations and five hours a week to practical work in field or drafting room, throughout the session. The subjects may be varied to fit the needs of the students taking the course, but will be chosen from the following: Reinforced concrete; bridge design; sewerage and water supply; specifications and contracts.

122. Thesis: Graduate students applying for the degree of civil engineer will be required to prepare and present a thesis, the regulations governing thesis work being the same as those prescribed for seniors.

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN.
PROFESSOR HILL.
ASSISTANT LESTER.
ASSISTANT SEYFORTH.

Courses of instruction offered:

JUNIOR CLASS.

201. Elementary theory of electricity and magnetism: A detailed study of the fundamental phenomena and laws of the subject. *Three hours, first term.*

202. Direct current machinery: Lectures and recitations on the principles of design, construction, installation, and operation of direct current generators and motors. This course treats in detail of the selection of machinery for given conditions, performance guarantees,

acceptance tests for heating, regulation, efficiencies, etc., parallel running, troubles and remedies, and repairs. A large number of carefully selected problems are assigned for solution and every effort is made to have the course cover not only the fundamental principles but also the broader engineering problems connected with the choice and use of this class of machinery. *Three hours, second term.*

203. Central station appliances and distribution for lighting and power service by direct currents: This course treats in detail of switch boards and appliances, calculation of circuits of various kinds, arc and incandescent lighting, metering, systems of charging for service, economics of generating plants. *Three hours, third term.*

204. Elementary theory of electricity and magnetism: For non-electrical engineering students. This course is similar to course 201, though not so detailed in treatment. *Two hours, first and second terms.*

204a. The construction and operation of both direct and alternating current machines; tests for efficiency, regulation and heating; the generation and distribution of electric power. In this course, it is intended to cover the application of electricity to the operation of machinery. For non-electrical students. *Two hours, third term.*

205. Electrical measurements and tests: For students in electrical engineering and mechanical engineering. The course consists of lectures and recitations upon the measurements of current, voltage resistance, capacities, magnetic measurements, stray power, brake tests, heat runs, and related subjects. *One hour, entire session.*

206. Laboratory work: For students in electrical engineering and mechanical engineering. The course consists of galvanometer work, resistance measurements of various kinds, magnetic measurements and various tests. *Four hours, first term.*

207. Laboratory work: For students in electrical engineering and mechanical engineering. The third term is devoted to the operation of direct current motors and dynamos, characteristics of direct current machinery, methods of adjusting, compounding, etc. *Four hours, second term.*

208. Laboratory work: For students in electrical engineering and mechanical engineering. Efficiency tests,

location of troubles on machine and line, switch boards and appliances, and general experience in the operation of a direct current station, are given. *Four hours, third term.*

SENIOR CLASS.

210. Theory of alternating currents: Lectures, recitations, and problems upon the phenomena of alternating current circuits, inductances, etc. The course is introductory to the subject of alternating current machinery, and in order to take it, students must have a fair working knowledge of differential and integral calculus and vector algebra. *Five hours, first term.*

211. Alternating current machinery: Lectures and recitations upon alternating current generators, calculation of alternator voltage regulation by various methods, parallel running, transformers, induction motors, single phase commutator motors, synchronous motors, rotaries, etc.; harmonic analysis of wave forms, the expression of the same in Fourier series and calculation of the current produced in various circuits.

The course is somewhat advanced and in order to take it satisfactorily students must have a good knowledge of the mathematical theory of alternating currents. *Five hours, second term.*

212. Transmission lines: Lectures and recitations upon line inductance and capacity, the application of hyperbolic functions to the calculation of the regulation of long transmission lines, effect of harmonics in E. M. F. waves, surges, etc. Stresses in conductors, line construction and related topics. *Five hours, third term.*

213. Laboratory work: Operation of alternating current machinery, determination of data for calculation of alternator regulation, direct determination of regulation, efficiency tests, transformer connections, transformer testing for efficiency and regulation, induction motor testing, circle diagram. Brake tests, single phase induction motors, synchronous motors, V-curves, rotaries, synchronizing, etc. The work during the third term consists chiefly in the determination of data for the student's thesis. *Four hours, entire session.*

214. Electric railway engineering: A detailed study of the subject of street and interurban electric railway ser-

vice covering train resistance, grades, curves, line and track, car and power plant equipment, both direct and alternating currents, sub-station, single phase equipment, and related topics.

The course consists of recitations and lectures with constant reference to current numbers of various technical journals. *Two hours per week, one term.*

215. Telephone engineering: History and development of telephone types, designs of telephone parts, substation equipment, magneto and common battery switch boards, exchange equipment, telephone power plants, over head and under ground circuits, protectors, coin collectors and meters, party lines, private branch exchanges, first and intercommunicating systems, trunking, and toll boards. *Two hours, first and second terms.*

216. Telephone laboratory: Details of telephone constructions, association of parts, assembly of switchboard parts, storage batteries, tests for location of faults in cables and lines, capacity and insulation tests, details of common battery and magneto switch boards, trunking schemes, etc. *Two hours, first and second terms.*

217. Electrical engineering: For senior mechanical engineering students. Direct current motors and generators, street railways, circuits, alternating currents, and alternating current machinery. This course is less detailed than the courses for electrical engineering students, but aims to cover the field in a more generalized manner. *Three hours, first term.*

218. Laboratory work: For seniors in mechanical engineering. This course is given in connection with course 217, and gives practice in the operation and testing of electrical machinery of various kinds. *Four hours, first term.*

219. Contracts and specifications: For seniors in the courses of electrical engineering and mechanical engineering. Lectures and recitations upon engineering specifications and the elements of the laws of contracts. Considerable time is devoted to exercises in writing specifications covering machinery and engineering projects. These specifications are read to the class and the students are required to offer criticism on each set. *Two hours, third term.*

220. Power plant: For students taking the special

course in applied electricity. The purpose is to familiarize the student with the operation of engines, pumps, generators, motors, switchboard appliances and boilers. All students in this course are expected to work under the power house engineer. *Four hours, entire session.*

ONE-YEAR COURSE IN WIRELESS TELEGRAPHY.

221. In response to a considerable demand it has been decided to offer a special course in wireless telegraphy. The practice work in this subject will be under the charge of a licensed wireless operator. Every effort will be made to offer to students opportunities to become familiar with the setting up, installation, and testing of wireless apparatus, as well as becoming expert in sending and receiving.

Wireless messages are constantly being picked up with the wireless station, these messages coming from ships at sea, and from various wireless stations along the Atlantic Coast.

The requirements for entrance to this course will be similar to those for entrance upon the two-year course in Applied Electricity.

The course of study is the same as that of the first year in the two-year course in Applied Electricity, with the exception that four hours of wireless telegraph study and practice will be substituted for four hours power house work.

MECHANICAL ENGINEERING.

PROFESSOR WILMORE.

INSTRUCTOR STOKES.

INSTRUCTOR MITCHELL.

INSTRUCTOR HIXON.

ASSISTANT HEARD.

ASSISTANT BENSON.

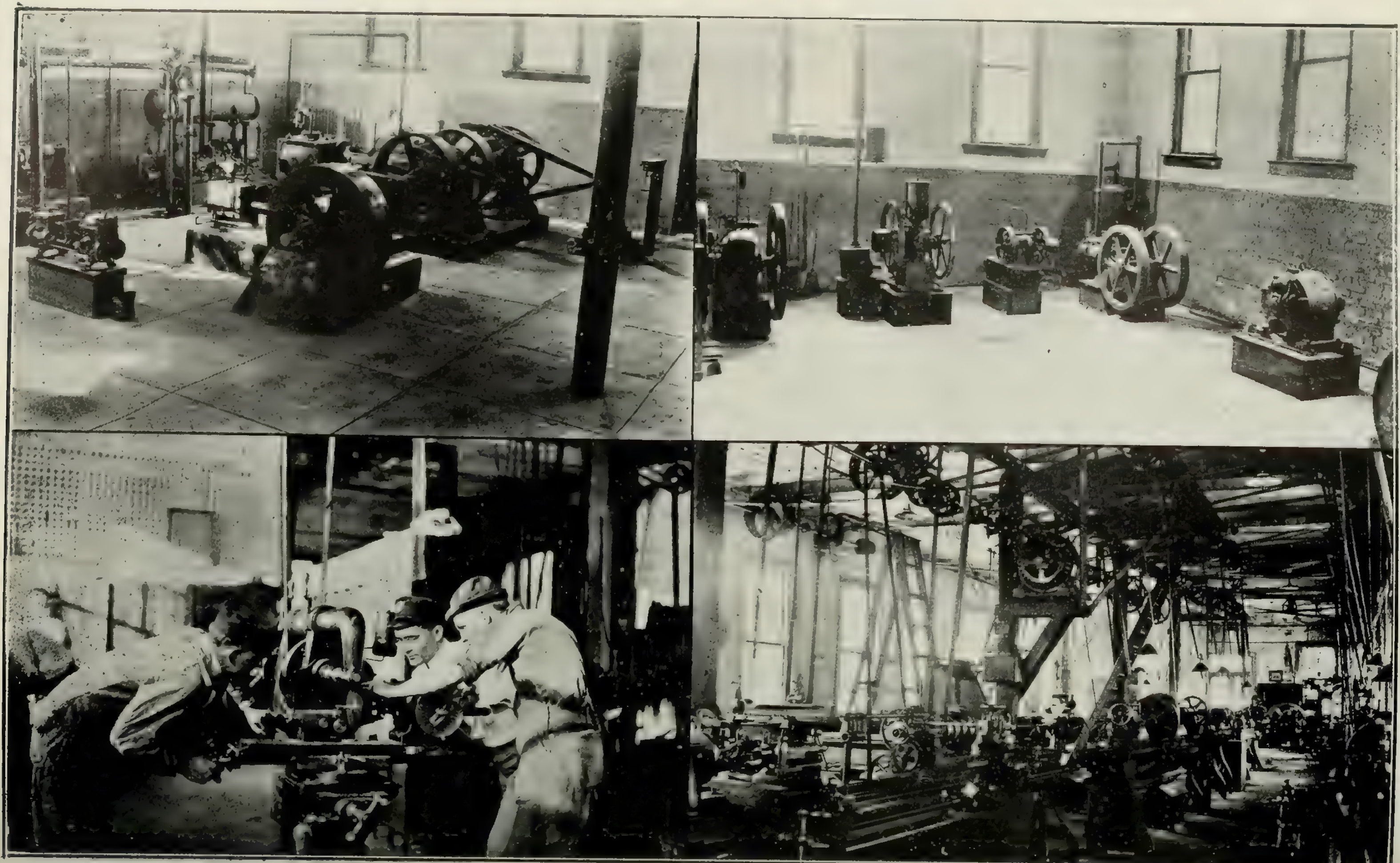
LABORATORY ASSISTANT WEAVER.

LABORATORY ASSISTANT BIBB.

The following courses are offered in this department:

FRESHMAN CLASS.

Students who have credit for a course satisfactorily



Mechanical Laboratories

completed in an accredited high school will be assigned to other work.

351. Shop work—carpentry: The lessons include instruction in the nature and use of tools; instruction and practice in shop drawing; elementary work with the plane, saw, chisel; the construction of different kinds of joints, timber splices, cross joints, mortise and tenon, mitre and frame work, and dove tail work, comprising the different joints used in cabinet work, and examples of framing roof trusses. Students who have had previous experience in the use of tools or who show special proficiency, are given work of an advanced character. *Six hours, one term.*

352. Shop work—wood turning: The instruction includes the nature and use of the lathe and tools, and the lessons comprise plain, straight turning, caliper work to different diameters and lengths, simple and compound curves, screw plates and chuck work, hollow and spherical turning. *Six hours, one term.*

353. Shop work—pattern making: The course includes work in whole and split patterns in wood for solid and cored castings, and core boxes for producing the necessary cores. The characteristics of the different kinds of timber used for patterns are studied, and attention is called to allowances necessary for shrinkage and draft. The patterns are intended to be used by the students in their subsequent work in the foundry. *Six hours, one term.*

SOPHOMORE CLASS.

312. Applied mechanics: Required of students in engineering courses. The fundamental laws of mechanical science are studied while special attention is given to the practical application of these principles to engineering work. *Three hours, second term, and five hours, third term.*

361. Shop work—forging: A text-book is used from which is learned something of the characteristics of the metals and the best methods of working them. The lessons are so arranged as to make the student familiar with the handling of the tools and the successive steps in working metals by hand. Exercises in drawing, upsetting and bending, cutting, punching, and welding by various

methods, are given, together with a course in steel forging, including hardening, tempering, and case hardening. *Four hours, first term.*

362. Shop work—foundry: Required of all students except those taking agriculture. The work for the most part consists of small articles, such as light machine parts and stock pieces used for the exercise work in the machine shop. A sufficient variety is introduced for the student to acquire a good general knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand and two part flasks, but some core work and more complicated work is introduced to illustrate the processes, as well as to furnish the castings for the advanced work in the machine shop. Instruction is given in operating the cupola, and from time to time lectures and recitations are held on the metallurgy and working of the metals used in the industrial arts. *Four hours, second term and five hours, third term.*

JUNIOR CLASS.

321. Practical mechanics: Required of students who take machine shop work. The instruction consists of recitations and lectures on general machine shop work. The construction, use, and limitations of the various machine tools, the forms of cutting tools and methods of grinding them, and the form and use of jigs and gauges, are studied, together with instruction in machine management, and time and cost keeping. *One hour, entire session.*

322. Strength of materials: Required of students in the engineering courses and in architecture. The properties and characteristics of the materials of engineering construction are studied, and the development of the methods of calculating their strength under different conditions of stress is explained. Many problems involving the strength of beams, girders, columns, and shafts are worked out. *Three hours, second and third terms.*

371. Shop work: Required of students in the courses of mechanical engineering and electrical engineering. This work is divided into two parts:

(a) A course of chipping and filing. The lessons comprise work on cast iron and wrought iron, and consist in chipping to line on flat and curved surfaces, key seating, filing, and finishing to line, surface filing, slotting, pin and screw filing, and surface finishing with scraper.

(b) A course in machine work: The materials worked on include cast iron, wrought iron, steel and brass. Exercises are given in turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling in the lathe and drill press, reaming, boring screw cutting in lathe and with taps and dies. Practice is given in working the planer, shaper, and milling machine. In the last part of the year, some work in tool making is given, such as making taps, reamers, and milling cutters. Some sort of construction or repair work for the department is always on the shop floor and students who are well advanced in their work have opportunity to gain additional practice and experience by assisting with this. *Six hours, entire session.*

374. Shop work: Required of students in the course of mining engineering and elective for juniors in the course of civil engineering. The work includes courses (a) and (b) as described in course 309 just preceding, except the amount of work required is less in proportion to the time consumed.

All shop work is done from blue prints and blackboard sketches. For the preliminary exercise work, special instruction sheets are prepared and given out to each student with the stock for the exercises. These sheets explain in detail each step in the process of producing the exercise, and are intended to supplement the individual instruction of the instructor. In the construction work it is the purpose to select some simple machine and build two or more of them on the interchangeable system. Jigs and templates are built to accomplish this result as far as possible. A system of time keeping is in force in the shop. At the end of the week each student makes out his time card, describing the work he has done during the week, and giving the number of hours spent on each job. *Four hours, entire session.*

377. Summer course: Required of juniors in the courses of mechanical engineering and electrical engineering. The work will consist in the adjustment and calibration of instruments used in engineering work, and

the adjustment and operation of gas, gasoline, and steam engines. Tests will be made to determine the efficiency of mechanisms, such as hoists, jack screws, gearing, belts and other transmission devices, together with some work in valve setting and power measurements of steam engine. Complete and accurate written reports of each experiment are required. *Twenty hours per week for two weeks, beginning the week following commencement.*

SENIOR CLASS.

331. Power plant engineering: Required of students in the courses of mechanical engineering and electrical engineering. The work of the course consists of a study of the practical applications of steam machinery. It is believed that a thorough knowledge of the apparatus in actual practical use is the best preparation a student can have for the study of the theory, and to that end, the different types of engines, boilers, pumps, condensers, and other auxiliary apparatus are taken up and studied in detail, and the advantages of each are discussed. Extensive files of manufacturers' catalogues are kept, and the technical papers and magazines in the library are freely used in order to keep in touch with the latest and best practice in engineering work. *Five hours, first term.*

332. Thermodynamics: Required of students in the courses of mechanical engineering and electrical engineering. The subject is first studied from the ideal standpoint, and later the applications are made to hot air engines, gas and gasoline engines, and steam engines, and also to air compressors and refrigerating machines. The temperature-entrophy method of analysis is used in explaining heat transfers, and in general, graphical methods are used in preference to analytical ones when they can be made to serve the purpose equally well. In this course will be given instruction in indicator practice and the interpretation and working up of indicator diagrams from steam engines, gas engines, air compressors, and refrigerating machines. *Five hours, second and third terms.*

334. Heating and ventilating: The different methods of heating and ventilating buildings are treated. A study is made of the relative efficiency of hot water, steam, and warm air as mediums for heating different

kinds of buildings, and special attention is given to the design and operations of healthful heating systems for residences. *Two hours, first term.*

335. Gas engines: This is a descriptive course, and gives attention to the construction and operations of gas engines and gas producers as used in modern power plants. The rapid development of the gas engine in recent years warrants a more extended treatment of this subject than can be given in the usual course of thermodynamics, and the above is offered as supplementary thereto. The subject will be presented by text-book, lectures, manufacturers' catalogues and drawings, and student reports on current articles of interest. *Two hours, second term.*

336. Refrigeration: Required of students in the course in mechanical engineering. The theory of the refrigeration process is studied together with its applications to commercial plants. The advantages of the various mediums, as ammonia, carbon dioxide and others are discussed, as well as methods of insulation and plant arrangement. *Three hours, third term.*

381. Laboratory: Required of students in mechanical engineering and electrical engineering. This work includes fuel analysis and heat determination, flue gas analysis and the study of combustion, oil and lubricant testing, and valve setting and indicator card analysis. *Four hours, first term.*

382. Laboratory: Required of students in mechanical engineering and civil engineering and optional in electrical engineering. The course includes work in testing the strength of materials, as iron, steel, wood, and cement in tension, compression, and transverse loading, and the calibration of wiers, nozzles, and meters, a study of the flow of water in pipes, and the testing of hydraulic motors and pumps. *Four hours, second term.*

383. Laboratory: Required of students in mechanical engineering and electrical engineering. The work includes tests of engines, boilers, pumps, gas and gasoline engines, complete power plants, and when opportunity offers, tests of commercial power plants. *Four hours, third term.*

GRADUATE STUDENTS.

391. Laboratory: This course is arranged to suit the work being carried by the students, and the hours are adjusted to suit their available time.

341. Steam turbines: The theory, design, and structural details of the different types of modern steam turbines are studied, and complete designs are worked out. *Three hours, first term.*

342. Power plant design and economics. The economics of power plant design, the relation of the different elements of a power plant to each other, and the conditions of maximum efficiency are studied. Plants are designed to give the highest efficiency under specified conditions, and actual plants are studied to discover, if possible, sources of additional economy in operation. *Three hours, third term.*

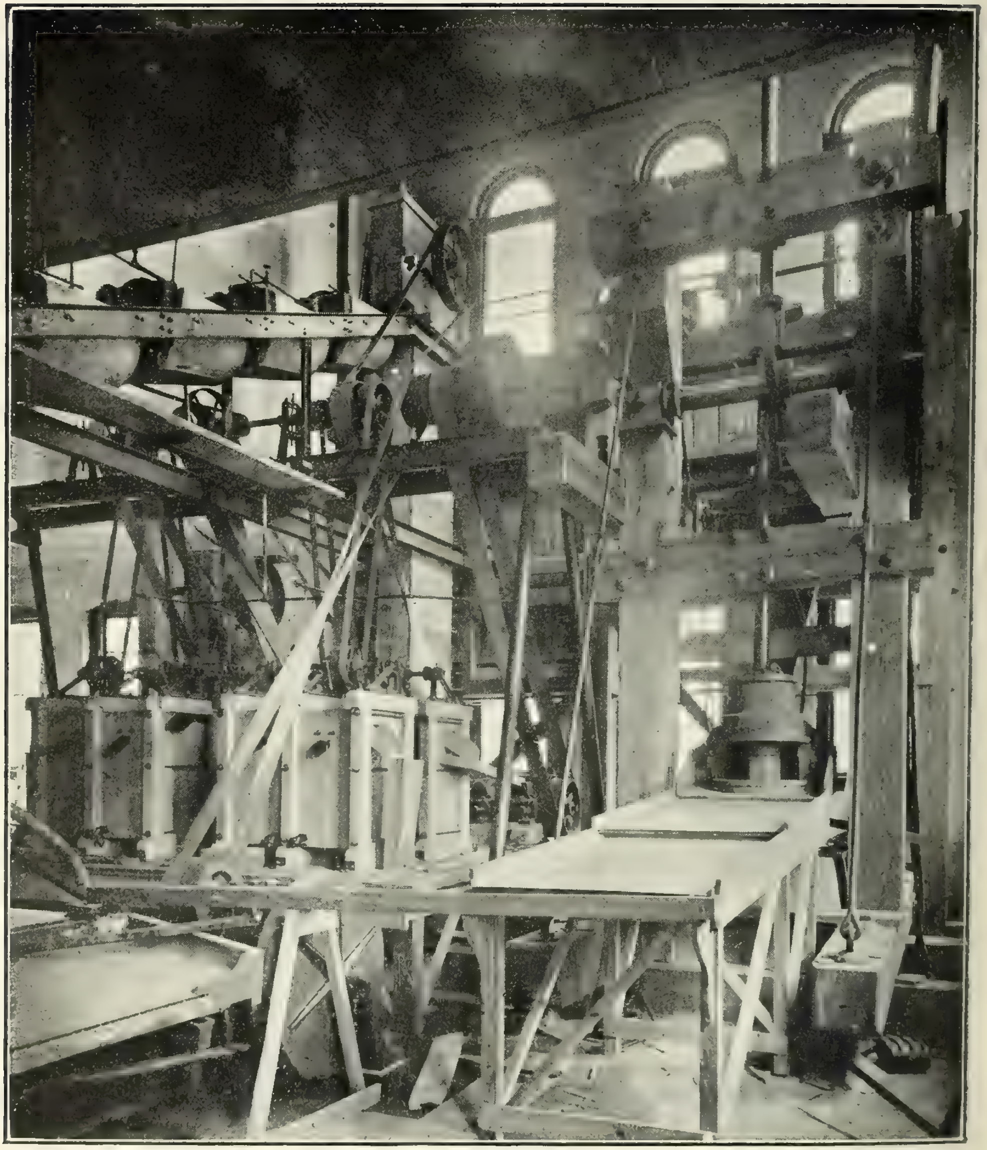
343. Works management: Methods of cost keeping, systems of organizing and paying labor, depreciation of plant, accounting and business organization are studied. Many problems are solved, including the lay out of buildings and machinery for manufacturing plants. *Three hours, third term.*

384. Thesis: Every applicant for a degree is required to prepare a thesis and hand it in not later than May 1st, preceding the commencement at which he expects to graduate. This thesis may consist of a design, a study of some engineering problem involving a series of tests, or a study involving the collection and analysis of data and material on some engineering subject, with a statement of definite conclusions derived therefrom.

For teachers who desire to secure preparation in the subjects pertaining to manual training, special shop courses are arranged. These will include such of the regular courses as are adapted to the requirements of the class, and suitable supplementary courses in wood and metal work. Lectures on the arrangement of courses and the equipment for instruction in manual training are offered.

SPECIAL STUDENTS.

Special students who have the necessary preparation may be admitted to any of the classes in this department. For the benefit of students who, for any reason, are not



Mining Engineering
Ore Dressing Laboratory

able to remain in college to complete the full course, but who wish some training in drawing and shop practice, a special two-year course has been arranged. This course is particularly recommended to young men who contemplate entering the mechanical trades either preceding or following the apprenticeship period. In many cases this work has been accepted as equivalent to a part of the apprenticeship period and the time of the latter shortened thereby. The drawing and mathematics are invaluable tools in any of the trades, and work in the different shops enables the apprentice to become familiar with the principles of the trades allied to his own.

The following courses are offered to students in the special Two-Year Course in Applied Electricity, and to any other students who may desire to take them.

3S1. Steam engines and boilers: An elementary descriptive course in which attention is called to the different types of engines and boilers, methods of setting, valve gears and valve setting, piping systems and auxiliary apparatus for power plants. *Three hours, first term.*

3S2. Gas engines: A descriptive course in gas, gasoline and oil engines; different cycles, methods of ignition, troubles and remedies. *Three hours, second term.*

3S3. Transmission of power: Shafting, pulleys, bearings, belting, gearing, aligning of shafting, calculation of pulley and gear sizes, power of belts, lubrication and lubricating systems. *Third term, three hours.*

3S4. Manual training for teachers: Courses in elementary wood work and iron work are offered. These courses will be adapted as far as possible to the individual needs of those taking the courses, and in addition to the shop work will include lectures and conferences on the organization of courses and the equipment of shops for manual training. *Hours to be arranged.*

MINING ENGINEERING AND GEOLOGY.

PROFESSOR BROWN.
ASSISTANT BASORE.

401. Mine surveying: All general surveying as given by the civil engineering department previous to the junior year is required for this course. The work covers general surveying methods as applied to conditions prevail-

ing at mining properties, both underground and at the surface. The student is required to work out practical problems that he will be likely to meet in actual practice. *Five hours, first half of first term.*

Text-book: Durham's Mine Surveying.

402. Coal mining: For those who have taken course 404 and its prerequisites. This course includes the following:

Examination of coal properties; drifts, slopes and shafts; methods of working; plans of mines; coal-cutting machinery; trackwork; haulage; mine ventilation; coal washing; coking in beehive ovens; by-product coking. *Five hours from first mid-term to end of session.*

403. Junior drafting: The course includes free-hand lettering, mapping, detailed drawings to scale of various structures relating to mines, design of mine cars, design of ventilating fans. *Five hours, entire session.*

404. Summer course: The time will be divided between a study of gold mining and milling at Alexander City; coal mining, washing, and coking at Birmingham, and iron ore mining at Birmingham. Surveys and reports will be required. *Four weeks immediately following commencement between junior and senior years.*

SENIOR CLASS.

411. Mining: Modes of occurrence and origin of the various ores and economically valuable mineral deposits. Prospecting and examination of mineral properties, in cluding boring by different methods. Methods of opening up mineral deposits, breaking ground, supporting excavations, developing and working coal and metalliferous deposits, haulage, hoisting, drainage, ventilation, lighting and provisions for ascent and descent. The last term is devoted to the design of mine structures, such as head frames (timber and steel), coal tipples, mine buildings. *Three hours, entire session.*

412. Drafting: Map work consisting of the plotting of notes taken on summer trip between junior and senior years; drafting accompanying design of mine structures; original work in connection with thesis. *Four hours, entire session.*

413. Laboratory course: For seniors in mining engineering and chemistry and metallurgy. The work in-

cludes crushing, sampling, concentration, stampmilling, amalgamation and cyaniding. *Three hours, entire session.*

Text-books: Coal and Metal Miner's Pocket Book, and International Text Books.

421. Graduate course: This course is offered to those who desire to pursue the subjects related to mining beyond the scope to which the two years' course limits them. The work will be arranged to meet the requirements of those desiring to take it.

431. Crystallography: For students in the courses in civil engineering, mining engineering, and chemistry and metallurgy. A thorough study is made of the crystal systems with the aid of a full set of crystal models and natural crystals. Special emphasis is laid upon the more practical features which will be of service in further mineralogical work. *Four hours, first mid-term.*

Text-book: Bayley's Elementary Crystallography.

432. Mineralogy: For juniors in the courses of civil engineering, mining engineering, and chemistry and metallurgy. The course consists of a thorough study of a large number of minerals from the standpoint of their physical characteristics. A good type collection of minerals is kept in the laboratory for comparison. An effort is made to have the student become familiar with economically important ores and non-metallic minerals, and the common rock-forming minerals so that he can identify them at sight by the application of a few simple tests. *Four hours, one and one-half terms.*

Text-book: Butler's Handbook of Minerals.

433. Lithology: For those who have satisfactorily completed course 432. This deals with the combinations of minerals in the make-up of rocks, and aims to bring out structure, texture, crystallization and mineralogical composition sufficiently to enable the student to recognize the commoner rocks in the sedimentary, igneous and amorphic classes. *Four hours, third term.*

Text-book: Kemp's Handbook of Rocks.

434. Agricultural geology: For juniors in agriculture. This course deals with the structure, composition and other characteristics of the different classes of rocks; the general principles involved in rock-weathering; special cases of rock-weathering; transportation and rede-

position of rock-debris; classification and character of resulting soils. *Two hours, first and second terms.*

Text-books: Merrill's Rocks, Rock-Weathering and Soils.

435. General geology: See course 441.

SENIOR CLASS.

441. General geology: For juniors in the courses of mining engineering, and chemistry and metallurgy, and for seniors in the courses of civil engineering and general course. The course covers dynamic geology, structural geology, geomorphology, and historical geology in the order named. The lectures and recitations are supplemented by laboratory instruction and geological excursions. *Two hours, entire session.*

Text-book: Chamberlain and Salisbury's College Geology.

442. Economic geology, non-metallic minerals: For seniors in the courses in mining engineering, and chemistry and metallurgy. The course is presented by lectures and recitations and includes the study of modes of occurrence, distribution, origin and uses of coal, petroleum, limestone, salines, gypsums, fertilizers, abrasives, minor non-metallic minerals and mineral waters. *Two hours, first term.*

Text-book: Riess' Economic Geology of the United States. (Revised).

443. Economic Geology, metallic minerals: For students who have taken course 408. The work includes a study of the ores of iron, copper, lead, zinc, gold, silver, silver-lead, aluminum, maganese, mercury, and the minor metals. *Two hours, third term.*

Text-book: Reiss' Economic Geology of the United States. (Revised).

444. Methods of teaching physical geography: Especially adapted to the secondary schools of the State. In the course in general geology will be found much that is especially applicable to physical geography. It takes up a study of subterranean and surface agencies both as to their destructive and constructive processes. The results of these processes are then taken up in a study of the topography of the surface of the earth and under the following heads: The geographic cycle; land sculpture;

topography as determined by faults and joints; adjustment of rivers; sea coasts; mountain ranges. Students desiring extra work in this subject may arrange for a three-hour course. *Two hours a week, first and second terms.*

ARCHITECTURE.

PROFESSOR HUDNUT.

ASSISTANT HARALSON.

The department of Architecture was established in June, 1907, to comply with an increasing demand for instruction in this subject and to encourage students to take up a profession which hitherto could be pursued only after an expensive term of study in the North.

The course as planned leads to the degree of B. S. in architecture after a period of four years' study, of which the first is devoted to those preliminary courses required of freshmen in all departments, while the other three are devoted partly to those technical courses which form the foundation of an architect's training and partly to certain cultural subjects which, though less obviously necessary, are nevertheless essential.

The curriculum recognizes the fact that only a part of an architect's training can be obtained in class room and laboratories; a large part must be obtained by experience in the offices of practicing architects. The immediate aim of the school is not therefore to give the student a complete knowledge of all the materials and processes of building nor yet to give him complete mastery of all the subtleties of architectural drawing and design. The aim is rather to give him that wide sympathy with intellectual culture which ought to distinguish the successful architect, and at the same time to give him a clear understanding of the more fundamental technical principles of his profession. In addition the student will acquire as great a facility in drawing as can reasonably be expected after three years of daily practice.

The following courses are required of all students in this department:

SOPHOMORE CLASS.

501. Architectural drawing: A study of architectural elements (walls, doors, arches, columns, etc.), and of

elementary architectural drawing. The orders are drawn and rendered and the student is given some practice in simple composition. Texts: Ware's American Vignola, Parts I and II. *Six hours, entire session.*

511. Freehand drawing: Elementary exercises in delineation and chiaroscuro from plates, casts, and natural objects. *Two hours, entire session.*

521. Building Construction: An elementary course in the preparation of working drawings, and the writing of specifications. Carpenter's work (framing, windows and doors, inside finish, hardware, etc., and mason's work, ordinary foundations, limes and cements, building stones, laths and plastering, etc.). Text-books: Martin's "Details," Kidder's "Building Construction." Vols. I and II. *Three hours, entire session.*

541. Architectural shades and shadows: A study of ordinary shades and shadows in relation to architectural features (cornices, columns, domes, etc.). Practice in drawing. Texts: Curtis' "Graphics," McGoodwin's "Shades and Shadows." *One hour, entire session.*

542. Perspective: Elementary exercises in freehand and mechanical perspective. Text: Curtis' "Graphics," Lawrence and Everett's "Perspective Drawing." *Three hours, third term.*

JUNIOR CLASS.

502. Architectural drawing and design: A continuation of course 501. Problems are assigned in the planning and composition of buildings, beginning with simple structures and advancing to more complex ones. Drawing-room criticisms and occasional lectures. *Six hours, entire session.*

512. Freehand drawing: A continuation of course 511. Sketches from the cast in pencil and charcoal and in wash. Rendering in pen and ink. *Two hours, entire session.*

532. History of architecture: Technical and historical development of the architectural styles. Lectures (illustrated with the stereopticon) and quizzes. Essays on specified topics, illustrated with sketches and tracings. The first year's course includes the history of architecture in Egypt, Greece and Rome. Text: Simpson's "A History of Architectural Development," Vol I.

SENIOR CLASS.

503. Architectural drawing and design: A continuation of course 502. Written programs are given the student and he is allowed six weeks for their presentation in rendered drawings; and in addition there are included sketch problems occupying eight hours or less. Drawing-room criticisms and occasional lectures; assigned readings in Gaudet and other authorities. *Eight hours, first and second terms.*

503a. Thesis: Two months of careful work on a single building or group of buildings.

513. Freehand drawing: A continuation of course 512. Practice in water-color drawing from objects and from nature. *Two hours, first and second terms.*

533. History of architecture: A continuation of course 532. Lectures and quizzes; occasional essays illustrated with sketches. The Byzantine, Romanesque, Gothic, and Renaissance styles are studied. Text: Simpson's "A History of Architectural Development," Vols. II and III.

MACHINE DESIGN AND MECHANICAL DRAWING.

PROFESSOR FULLAN.
INSTRUCTOR THOMAS.
ASSISTANT PROSSER.

The following courses are offered in this department:

FRESHMAN CLASS.

601. Mechanical drawing: This course in drawing is of general educational value, and is required of students in all courses. The object of the course is to train the mind through the eye and hand with the applications of geometry to drawing. Accuracy, neatness, and the correct use and the care of instruments, are given special attention.

The work is given in the following order:

(1) Freehand drawing and freehand lettering.

(2) Linear drawing—geometrical construction.

(3) Orthographic projection, sections, and intersections.

(4) Development of surfaces and the construction of models.

(5) Isometric, cavalier, and dimetric projections.

(6) Study of working drawings, making tracings and blue prints.

Freehand drawing of geometrical subjects is given early in the course. It provides training of a certain definite nature by developing close observation and accuracy in representing the forms of models used in the work. Freehand lettering of standard practice is strongly emphasized throughout the entire course. The construction and application of Roman and Gothic capitals and small letters to working drawings and the arrangement and design of formal titles are treated in this division.

Under the head of linear drawing, special attention is given to the proper use and care of instruments. The most useful of the geometrical constructions are worked out in pencil and afterwards carefully inked.

Orthographic projection with sections and intersections is given in the beginning of the second term and is a prerequisite to course 602 in descriptive geometry. Developments of surfaces are made and paper models of the objects are constructed from these developments. The construction of these models has the property of more firmly fixing the principles involved in the preceding division in the mind of the student and is given special attention.

In the third term pictorial representations of objects are given by means of single-view projections, isometric, cavalier, and dimetric. The paper models made by the pupil are now used for subjects. A number of working drawings of familiar objects are required in the last part of the year. Penciled drawings to scale, tracings, and blue prints of these objects are made by each member of the class. *Four hours, entire session.*

SOPHOMORE CLASS.

602. Descriptive geometry: Required of all students preparing for engineering and architectural courses. The work is given by lectures, written recitations, and drafting room instruction. In this course, theory and practice are combined with the purpose of training the student

in the graphical expression of ideas. The instruction includes problems relating to the point, straight line, and plane; tangents and normals; to cylindrical, conical, and warped surfaces, to sections, intersections, and developments; to shades, shadows, and perspective, and is intended to develop in the mind of the student a clear concept of magnitudes in space. The lectures and written recitations are to impart principles and to permit the instructor to meet the entire class, and, with diagrams and models, supplement the work of the text. The drawing, two hours per week, consists of plates of problems, which are selected from the text-book and other sources. *Four hours, entire session.*

603. Mechanical drawing: This course will not be given in the sophomore class after session 1915-16. It is like course 601, of the freshman class, non-technical and of general educational nature. The work is given concurrently with that of course 602, in descriptive geometry, and the applications of the methods of analysis given in descriptive geometry are stressed in each case where they may be applied. The subjects of the drawing plates, which are principally geometric, are required to be completely represented by the student, to enable one to read clearly what is intended to be shown. The work includes isometric projection, orthographic projection, sections, intersections, and developments, machine drawing, and freehand lettering.

As a check on the work in sections, intersections, and developments, and to more fully illustrate the subject, models from drawing paper of the surfaces are made by the student from the developments. This course is a prerequisite to work in the junior class in civil, electrical, mechanical, and mining engineering. *Three hours, entire session.*

JUNIOR CLASS.

604. Kinematics of machinery: Required in the courses of mechanical engineering and electrical engineering. Under this head, machines are analyzed and their elementary combinations of mechanism are studied. Motions and velocities, instantaneous centers, kinematic chains, velocity diagrams, parallel and straight line motion mechanisms, are given early in this course. The communication of motion by means of gear wheels, belts,

cams, screws, and link work, and the different ways of obtaining definite velocity ratios and definite changes of velocities in machine parts are investigated. Problems in designing quick return motions, trains of mechanisms for various purposes, and gear trains, are treated. Illustrated lectures with the lantern, showing practical applications of mechanism to the design of machinery, are given at intervals throughout the course. *Three hours, first term.*

605. Graphic statics of mechanism: Required in course of mechanical engineering. The lectures provide a brief course in graphic statics, graphical statics of mechanism, and in the design of structures, including roof trusses for factory buildings, crane frames, girders, and water-tank towers. The stresses in machines and structures are investigated by graphical methods, which are carefully checked in the beginning, by analytical proofs. This course includes the solution by graphical methods of such problems, before which analytical methods are comparatively impotent, as those which involve the friction losses in machines, and of the determination of the efficiency of mechanisms. The graphical method is also applied to dynamics by problems in the balancing of engine crankshafts working under specified conditions. The use of manufacturers' handbooks and drafting-room practice are given special attention. *One hour, entire session.*

606. Machine design: Required in the courses of electrical engineering and mechanical engineering. Instruction is given in the design of fastenings and machine parts, and in the general methods of arranging views. This course includes the design of cams, gear tooth outlines, quick-return motions, and link-work combinations, which supplements course 604, in kinematics. Scale drawings of simple machines are made from dimensioned sketches, which each student makes for himself from an actual machine or model. Tracings and blue prints, are made from these drawings. All the instruction is intended to familiarize the students with modern drafting room methods. *Four hours, entire session.*

SENIOR CLASS.

607. Machine design:—lectures: Required in the courses of mechanical engineering and electrical engineering.

These lectures are intended to cover the general instructions to the students, such as the selection of materials for different machine parts, the rules for proportion of parts to secure strength, symmetry, and cheapness of manufacture, and the best methods of making, recording and preserving the calculations incidental to the design of a complete machine. Much valuable engineering data of current nature in the form of notes are given as a supplement to the text-book. Illustrated lantern lectures on subjects related to the course are given at intervals during the year. *One hour, entire session.*

608. Machine design—drawing: Required in the course in mechanical engineering. This is a continuation of the junior course in machine design. Original problems involving the design of complete machines to work under specified conditions are assigned and the student develops the idea in the form of sketches. These are submitted to the instructor for criticism and are afterwards embodied in complete detail and assembly drawings. The calculations of each design are written up neatly and filed with the drawings. Special attention is given to the strength of the parts, to the harmonious and symmetrical appearance of the complete machine, and to the details as regards practical manufacture. *Six hours, entire session.*

609. Machine design—drawing: Required in the course in electrical engineering. The work given and the methods pursued are similar to those described in course 608, just preceding, but the amount of work required is reduced in proportion to the amount of time given to the subject. *Three hours, entire session.*

GRADUATE STUDENTS.

610. The work offered during the post-graduate year is an extension of that of the senior year. More of the theory of the subject is taught, more intricate machines are involved, and problems are given involving the design of a series of machines for manufacturing some specific article. The problems arising in the design of a line of machines of different sizes are also taken up, including the applications of graphical methods and the use of factors of enlargement and reduction. Special attention is given to the effect of current practice on the proportion

of machine parts. Suitable text and reference books are used.

611. Methods of teaching drawing and descriptive geometry: A course in the methods of teaching drawing and descriptive geometry is given to those who wish to prepare for teaching these branches. This course includes advanced work in shape of problems, supplemented by frequent conferences with the instructor, a full bibliography of works on the subjects, and an extended course in reading.

Those who desire to avail themselves of an opportunity to practice the teaching of the subjects, may be permitted to attend the meetings of the large classes in elementary work for the purpose of observing methods of teaching.

Those who show sufficient preparation may be allowed to assist in tutoring delinquent students and those who enter conditioned.

Special attention is given to the subject of drawing as taught in high school work.

TEXT-BOOKS.

Cross' Mechanical Drawing, Jamieson's Isometric Drawing, Phillips and Millar's Essentials of Descriptive Geometry, French's Engineering Drawing, Keown's Mechanism, Spooner's Machine Design, Smith and Marx's Machine Design, Cathcart and Chaffee's Graphics, Halsay's Handbook Machine Design, Law's Applied Mechanics.

Comer Agricultural Hall

COLLEGE OF AGRICULTURAL SCIENCES

CHEMISTRY.

PROFESSOR ROSS.
PROFESSOR HARE.
ASSOCIATE PROFESSOR BRAGG.
INSTRUCTOR POWELL.
INSTRUCTOR MARSH.
ASSISTANT MARTIN.
ASSISTANT PIPKIN.

Instruction in this department embraces the following courses of lectures: systematic laboratory work is given in connection with each course for the practice of chemical analysis and chemical research:

FRESHMAN CLASS.

101. Course in general chemistry: This consists of a series of lectures including a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties, and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form. *Four hours, entire session.*

REFERENCE BOOKS.

McPherson and Henderson's General Chemistry, Newth, Holleman, Smith, Mellor, Chemical Journals.

SOPHOMORE CLASS.

103 (b). Organic chemistry: This course, though somewhat more condensed, is similar to 103 (a), with the exception that the latter portion of the course is devoted to a special study of fats, carbohydrates and proteins with reference to their functions in the life processes of

plants and animals. *Two hours throughout the first and second terms.*

105. Agricultural chemistry: This course consists of lectures on chemistry in its application to agriculture and includes a thorough discussion of the origin, composition, and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist. *Five hours, throughout the third term.*

REFERENCE BOOKS.

Snyder's Soils and Fertilizers, Snyder's Chemistry of Plant and Animal Life, Johnson's How Crops Grow, and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Stoddart's Agricultural Chemistry, Storer's Agriculture in Relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

JUNIOR CLASS.

102. Industrial chemistry: Lectures, including discussion in detail of the processes and chemical principles involved in the most important applications of chemistry, in the arts and manufactures to the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams. *Three hours, first and second terms; four hours, third term.*

REFERENCE BOOKS.

Thorp's Industrial Chemistry, Wagner's Chemical Technology; Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Sadtler's Industrial Organic Chemistry, Blount and Bloxam's Chemistry for Engineers and Manufacturers.

103. (a). Course in organic chemistry: Instruction in

this subject embraces lectures and recitations upon the leading facts and principles of the chemistry of the carbon compounds, and includes a study of the methods of preparation of the more important compounds, their properties, and their structural and stereo-chemical relations. *Three hours, first and second terms; two hours, third term.*

TEXT AND REFERENCE BOOKS.

Remsen's Organic Chemistry, Richter's Organic Chemistry, Gatterman's Practical Methods of Organic Chemistry.

SENIOR CLASS.

104. Course in Metallurgy: This consists of lectures and recitations upon the more important metals, such as iron and steel, copper, lead, tin, silver, gold, mercury, zinc, etc. It includes a discussion of the physical and chemical properties of the metals and their alloys, the ores and their treatment, and the processes by which the metals are obtained from the ores, with chemical reactions involved. *Three hours, second and third terms.*

104b. Metallurgy: An advanced course in iron and steel. Lectures and recitations upon the special methods of manufacturing iron and its several alloys, or steels. Required of seniors in mining engineering, chemical engineering, chemistry and metallurgy, and mechanical engineering. *Three hours, third term.*

106. Engineering chemistry: A course given during the senior year, especial attention being devoted to the study of the construction and equipment of the chemical plants devoted to the manufacture of the more important chemical products. Excursions to various chemical and metallurgical plants during the course of the year will aid in familiarizing the student with the practical details of the operation of the leading industries. *Two hours, second and third terms.*

107. Course in theoretical chemistry: The more modern phases of chemical theory are given special attention. *Two hours, first term.*

108. Course in physical chemistry: Lectures and recitations. *Two hours, entire session.*

109. Methods of teaching chemistry in the secondary schools: In this course, students who have had the neces-

sary preliminary work in chemistry will be afforded the opportunity of taking laboratory practice in experimental chemistry for lecture purposes and for the purpose of the practical study of methods of handling classes in experimental laboratory work. Advanced students can also take the course in the history of chemistry which is provided in the senior year of the course of chemistry and metallurgy. *Hours to be arranged.*

111. Course in advanced inorganic chemistry: *Two hours per week, entire session.*

LABORATORIES.

110. Courses of practical work in the laboratory are carried on in connection with all courses of lectures.

The laboratories, which are open from 9 A. M. to 5 P. M. during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation in qualitative and quantitative analysis, and in the methods of prosecuting chemical research. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles and the common re-agents and apparatus used in the qualitative and quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from his contingent fee.

SOPHOMORE CLASS.

(a) All students in the courses in agriculture, chemistry and metallurgy, chemical engineering, and mining engineering are required to take practical laboratory work. Students in the course in pharmacy upon application, may be allowed to take this work.

The work of this course embraces the preparation of a number of non-metallic elements and some of the more important inorganic compounds, the identification of metals by means of the blowpipe, and the qualitative separation and detection of the bases and acids.

JUNIOR CLASS.

110 (b). A course in quantitative analysis, embracing

gravimetric and volumetric analysis and including the analysis of limestones, iron ores, etc. *Six hours, entire session.*

SENIOR CLASS.

(c). A course in quantitative analysis, including analysis of fertilizers, soils, coals, ores, iron and steel, sugars and sugar products, feed stuffs, mineral waters, fluxes, slags, cinders, furnace gases, etc. The nature of the work is varied somewhat to suit the individual object of the student. *Six hours, entire session.*

(d) The laboratory course provided for students in the course in mining engineering embraces work in quantitative analysis, including assaying. In the latter portion of the course, especial attention is given to metallurgical analysis and the fire assay of ores of gold, silver, and other important metals. *Eight hours, entire session.*

(e) In the courses in pharmacy and veterinary science, instruction in urine analysis and in toxicology and toxical analysis is given during the last term.

(f) In the junior year, a laboratory course in organic chemistry is provided for students in the course in chemical engineering throughout the entire year, and for students in the course in chemistry and metallurgy during the third term. *Four hours, entire session.*

The short course includes systematic laboratory work in organic preparations, while the longer course embraces work in organic analysis, as well as in preparations.

112. In addition to the laboratory work above described it is designed to give a short course of laboratory work in industrial chemistry, in which the student will apply upon a small scale the principles involved in the processes of some of the more important chemical industries.

Students completing the above courses are afforded ample facilities for advanced work along special lines.

AGRICULTURE.

PROFESSOR DUGGAR.
ASSOCIATE PROFESSOR FUNCHESS.
ASSISTANT BOYD.

The regular agricultural course extends through four years and is intended to prepare those who complete it to become successful farmers, farm superintendents, and agricultural scientists in the various divisions of agricultural work in the U. S. Department of Agriculture and the numerous agricultural colleges and experimental stations. The studies in the regular agricultural course are so arranged that a student may obtain a thorough education while acquiring the technical training necessary to the most successful management of farming operations and of agricultural investigation or teaching. No foreign language is required for graduation in this course, but those who expect to engage in scientific work of the U. S. Department of Agriculture or of the agricultural colleges and experiment stations, have the opportunity to study Latin, French and German, or any one or two of these.

For the benefit of those who are unable to spend four years at college and who desire to prepare for the management of a farm, a short two-year course in agriculture is provided. In this the student devotes his entire time to those studies having a direct bearing on his future occupation.

The following courses of instruction are offered:

FRESHMAN CLASS.

201. Introduction to agriculture: This is a short course of lectures, dealing with some of the simplest phases of agriculture. *Two hours, half first term.*

SOPHOMORE CLASS.

202. Corn: Lectures, recitations, and field practice on the cultivation, judging and improvement of corn. The student assists in harvesting certain experiments, becomes acquainted with a number of the best varieties, learns to select the best ears and the best plants, and notes the results of experiments in improving or breeding corn. This course will be required of juniors in 1915-1916. *Two hours, lectures; two hours, laboratory, first term.*

203. Farm accounts: *Lectures and practice, two hours, second term.*

204. The small grains: Lectures, recitations, and field practice on wheat, oats, rye and barley. These plants are treated both as grain crops and as forage plants. *Two hours, lectures; two hours, laboratory, third term.*

JUNIOR CLASS.

204. Drainage, terracing, and farm structures: While these topics are the subjects of lectures and recitations, chief stress is laid on giving the student practice in locating terraces, laying out ditches, and planning systems of tile drainage. Such time as is available is given to the study and planning of barns, fences, gates, etc. *Two hours lectures, two hours laboratory, first term.*

205. Leguminous forage plants and soil improvement: Lectures, recitations, and field practice on this most important group of forage plants, including cowpeas, soybeans, alfalfa, the clovers, vetches, etc. These plants are treated both with reference to their use as forage plants and as a means of improving the soil. *Two hours lectures, two hours, laboratory, third term.*

SENIOR CLASS.

206. Cotton: Lectures, recitations, and field practice in identifying and comparing a large number of varieties growing on the experiment station farm; judging individual cotton plants, and lectures on the cultivation, fertilization, and improvement of cotton. The collection of varieties growing on experiment station farm usually numbers between fifty and one hundred varieties, and all of these are available for students' use. *Two hours lectures, two hours laboratory, first term.*

207. Cotton classing: This course of laboratory work consists of practice in classing the commercial grades of cotton by comparing great numbers of samples procured from the offices of cotton buyers with a nearly complete set of type samples owned by this department. A part of this practice will be under the supervision of experienced cotton buyers. *Two hours lectures, two hours laboratory, second term.*

208. Farm management: A course of lectures and prac-

tice dealing largely with rotation of crops, cost of producing different crops, systems of farming, selection of a farm, and plans for the best use of the farm or soil in which each student is most interested. This course is intended to give the student an opportunity to bring to bear on practical problems the information acquired from preceding courses of instruction in agriculture and related subjects. *Two hours, lectures, two hours laboratory, third term.*

209. Investigation as a basis for a thesis: After a month spent in special reading under the direction of the professor of agriculture with a view to the selection of a subject for a thesis, the student will perform some agricultural experiment in crop production, soil treatment, or in testing farm machinery. Suitable facilities for such thesis work are provided in the fields and agricultural laboratories. In addition to conducting an original experiment the student will review the literature of agriculture to ascertain the results of similar or related experiments. It is expected that the results of some of these experiments will be worthy of publication. *Entire session.*

211. Soils and soils laboratory: Recitations intended to acquaint the student with the physical properties of soils, with the principal soils of Alabama, and especially those of the region from which each student comes. Instruction in this course will be given with a view to fitting a student to engage in the soil survey work of the U. S. Department of Agriculture, as well as to prepare him for the rational management of the soil of the farm. *Five hours, entire session.*

212. Special crops: A course of lectures dealing with sugar cane, tobacco, rice, broom-corn, and other southern crops not treated in other courses. *Two hours, second term.*

213. Methods of teaching agriculture: This is a course of lectures and laboratory and field exercises intended to meet the needs of those who expect to teach agriculture or nature study in the common schools and agriculture in the high schools. Special attention is given to the selection of material for illustrating the principles of agriculture, and practice will be given in conducting a number

of simple demonstrations. Frequent excursions are made in the fields. *Two hours, third term.*

214. Farm machinery: This is a laboratory course in which the student is made familiar with the construction and operation of various classes of farm machinery, including plows, cultivators, planters, grain drills, mowing machines, etc. Required of students taking Group "A." *Two hours, second term.*

215. Field operation of farm machinery: Instruction in the field operation of farm machinery is offered during the first and third terms, as an elective course to a limited number of seniors, pursuing the studies of Group "A." Meetings during these terms are by special appointment with the instructor in charge, and credit is given according to the time devoted to the subject. *Hours by appointment.*

Post graduate courses in crop production, agricultural experimentation and teaching, and farm management are offered. The exact nature of the subject will depend upon the special requirements of the student.

Students taking a four-year course in agriculture receive instruction in the various branches of animal husbandry and horticulture, as well as in the natural sciences bearing on agriculture.

BOTANY.

PROFESSOR CALDWELL.

ASSISTANT PROFESSOR MASSEY.

The courses offered by the Department of Botany are designed to meet the needs of three differing groups of students: Those desiring to secure some general acquaintance with the elementary facts and principles of a biological science as a necessary part of a cultural education; those desiring a thorough and detailed presentation of certain aspects of the subject as a prerequisite to entrance upon the study of medicine or of some phase of applied botany such as horticulture or agronomy; those seeking the fullest possible collegiate training in the subject as a preparation for teaching or for advanced work in the subject. For information as to laboratory equipment see page 17.

SOPHOMORE CLASS.

301. General botany: This course is planned to meet the needs of all three classes of students just named. It is designed to furnish a broad general introduction to the fundamental principles of a biological science, supplying the foundation upon which subsequent courses are built while at the same time giving to the non-specialist student a good acquaintance with those biological principles which should form a part of his equipment for life. The course is not rigidly morphological, but attempts to supply an introduction to the evolutionary history and the fundamental physiological processes of organisms, employing plants as illustrative material. The first half of the year is devoted to the general morphology of selected representatives of the Cryptograms. The evolutionary relationships of the great plant groups will be outlined in the lectures and illustrated by the study of types in the laboratory. About forty carefully selected type forms will be studied in detail, while a considerably larger number will be examined in a comparative way. Especial stress will be laid upon the life-histories and biological relationships of those forms which are of greatest economic importance, hence a considerable proportion of the time will be given to the fungi. The second half of the year will be devoted to the general morphology of the flowering plants. The topics upon which especial stress is laid are: vascular anatomy, the histological elements, and recognition by chemical and microchemical tests of the commoner stored food substances. Secondary attention will be devoted to elementary physiological principles and facts and to the correlation of these with the facts of anatomical structure, but the chief end of the course is to convey a knowledge of the principles of morphology. Required of all sophomores in the college of agriculture. *Two hours lectures and four hours laboratory, entire session.*

309. Pharmaceutical botany: This course is designed to supply such knowledge of the facts and principles of botany as are prerequisite to the special work of students in pharmacy. The first portion of the course is

devoted to a systematic presentation in lectures and laboratory of the fundamental principles of anatomy and physiology of the higher plants, followed by detailed microscopical and microchemical examination of the more important histological elements and food substances of plants. Considerable attention is devoted to the methods, microscopical and chemical, employed in the examination of crude drugs and the detection of adulterants. The third term is devoted to the study of the principles of classification; a description of the work done in this part of the course will be found under course 306. Required of sophomores in the course in pharmacy. *Two hours lectures, four hours laboratory, entire session.*

JUNIOR CLASS.

302. Agricultural bacteriology: This course is designed to supply to students contemplating specialization in animal husbandry or in some phase of applied botany, as horticulture, forestry, or agronomy, such an introduction to the principles of bacteriology as may furnish a basis for study of the special problems to be encountered in these lines of work. After a brief introductory discussion of the general morphology and physiology of the bacteria, the biological relations of the specialized groups will be taken up. The bacteriology of fermentation and putrefaction, the nitrogen-fixing and sulfur bacteria, the application of bacterially produced processes in the industries, and the more important problems of soil bacteriology will be dealt with in such detail as time permits. The point of view throughout the course is distinctly economic. The forms pathogenic for man and for animals will not be considered. *Two hours lectures, four hours laboratory, first term.*

303. Plant physiology: The subject matter of this course falls naturally into two parts, which are designated as a and b.

303 (a). Plant physics: This course deals primarily with the physical relations of the plant and with the physical forces concerned in plant processes. The subjects covered will be: The plant cell as an osmotic apparatus, the nature of the protoplasmic membrane; protoplasmic permeability; the physical principles concerned in the absorption of water, the physics of transfer of so-

lutes through protoplasmic membranes; the physiology of the root system, physical features of the soil in their relations to extent and distribution of roots; the water-content of the soil in relation to plants, physical factors of the soil in relation to water-holding power, physiologically significant quantities of water in soils, plant forces concerned in removal of water from the soil; mineral nutrients of the soil in relation to plants, historical development of the humus and the mineral nutrient theories of soil fertility, methods of study of the soil solution and significance of the results; absorption by soils, its bearings upon studies of the mineral requirements of plants; the theory of antagonism, the soil solution as a balanced solution; acid and alkaline soils, causes and practical methods of dealing with these conditions; toxic plant by-products in relation to soil infertility, biological basis for the toxin theory, its present status. The problems of energy exchange in plants; the physics of carbon dioxide absorption, the limiting factors upon photosynthesis, the energy expended in photosynthesis. Transpiration as a physical exchange with the surroundings, internal and external regulation of transpiration, thermal emissivity. The physics of movements of water in plants. *Two hours lectures, four hours laboratory, second term.*

303 (b). Plant chemics: This course considers the chemical phenomena occurring in plants, and will cover the following topics: The chief food substances of plants; the classification, composition and inter-relationships of the carbohydrates and the glucosides; the composition, relationships and biological importance of the plant fats, synthesis of fats in the plant; the physical properties, chemical composition, and products of hydrolysis of proteins, synthesis and transformations of proteins in plants; distinctive characters and classification of enzymes; the process and product of photosynthesis, conditions affecting rate of photosynthesis, the elaboration, translocation and storage of the products of photosynthesis. Respiration, oxidations for energy release, aerobic and anaerobic respiration; the mechanics of respiration and fermentation, the processes and the products. A brief consideration of the effect of external factors on growth and reproduction. Variation and her-

edity. *Three hours lectures, six hours laboratory, third term.*

SENIOR CLASS.

304. Plant pathology: The lectures of the first half of the course will deal with the morphology, distinguishing characters, and methods of identification of those orders of fungi which are concerned in the production of economically important plant diseases. The relations of parasite to host will be studied through the employment of a few examples of each of the categories of plant disease—parasitism immediately destructive to tissues and life of host; symbiosis terminated by destruction of the host at the reproductive period; invasions which do not involve destruction of living tissues—to the end that the student may acquire some degree of ability to make diagnoses of plant diseases. Habit studies in the field will be followed, so far as possible, by cultural studies in the laboratory, employing representatives of all the more important pathogenic orders. Each student will be required to collect and classify a considerable number of pathogenic fungi. The second half will deal with those diseases of farm, garden, and truck crops which are of most interest to agriculture and horticulture in the state. The lectures will consist for the most part of a review and discussion of the more important literature, with especial reference to prevention and control. The laboratory work of this portion of the course is designed to give the student an acquaintance with pathological technique and with field methods through the combination of field studies with cultural and morphological studies of assigned organisms in the laboratory. These problems may form the basis for thesis work or for investigation which may be continued through the year. *Two hours lectures, four hours laboratory, first and second terms.*

305. Plant histology: This course covers a rather broader field than the title would imply, as its purpose is to furnish to students planning to become teachers or advanced students of botany, such familiarity with the collection, preservation, and preparation of the materials ordinarily used in introductory botany as will enable the student to collect and prepare materials for study or

to do intelligent and effective teaching. The technique of the more widely used methods of preserving, sectioning, and staining will be taught, and the student will be directed in the collection and preparation of a representative teaching collection, including permanent gross and microscopic preparations of representative forms ranging from the lower Algae through the flowering plants. Such materials become the property of the student, who will pay actual costs of reagents, glassware, and breakage. The lectures will give consideration not only to general histological technique, but also to the choice and methods of presentation of illustrative material in elementary courses in the subject. *Two hours lectures, four hours laboratory second term.*

306. Taxonomic botany: This course is intended to meet the needs of students desiring to acquire some acquaintance with the flora of the region. The work demands some such knowledge of the general morphology of the flowering plants as is supplied by course 301 or its equivalent. The student will be instructed in the use of keys and manuals, and the lectures will deal with the classificatory characters of the more important plant families. The laboratory work will be to a considerable extent adapted to the especial needs of the student, so that those who desire to pay particular attention to special groups, as an adjunct to work in horticulture or agronomy, will find an opportunity to do so. Required of sophomores in pharmacy and juniors in veterinary medicine. *Two hours lectures, four hours laboratory or field, third term.*

307. Physiological chemistry of plants: This course will deal with the chemical recognition and quantitative estimation of the principal groups of food materials—carbohydrates, fats, and proteins—found in plants in very much more extended fashion than is possible in Course 303b, of which this course is a continuation and extension. While the materials used will be mainly those derived from plants, the student will study representatives of the protein sub-groups found in the animal body as well as those characteristic of plants. The course is designed to furnish an introduction to the methods and the technique of physiological chemistry as applied to quantitative studies in plant physiology.

Students who have the necessary training in organic chemistry may enter the course, and the work of course 303b may be carried on simultaneously with this. *Two hours lectures, four hours laboratory, first term.*

308. Quantitative analysis of plant tissues: This course offers to properly prepared students an opportunity to become acquainted with modern research methods in biological chemistry and to apply these methods to the investigation of problems of normal or pathological physiology. The work will be very largely independent, each student being assigned a definite problem which may be of his own choosing or a portion of a larger problem already under investigation. Some of the problems already under way are: Studies of the chemical changes occurring in certain fruits during ripening; the chemical changes produced in the tissues of the host by the entrance and growth of a parasitic fungus; the biochemistry of after-ripening. *Six to twelve hours, laboratory, second and third terms or throughout the year.*

GRADUATE COURSE.

The department offers to properly prepared students opportunity for advanced work in botany, particularly in plant physiology and pathology. Students planning to do graduate work should consult with the head of the department as early in the course as possible, preferably at the beginning of the junior year, in order that proper choice of the electives may be made. The general requirements for graduate work in the department are: the satisfactory completion of the undergraduate courses in botany, together with the required courses in organic and agricultural chemistry, courses in plant breeding and forestry (Horticulture 609 and 610), and a fair reading knowledge of German and French. By special arrangement with the department head, a student may begin graduate work without having fully met these requirements, with the understanding that they are to be fully met prior to serious entrance upon his work in the department and in addition to the work in botany required for the Master's degree.

TEXT-BOOKS.

301. Coulter, Barnes and Cowles' Textbook of Botany, Volume I.

302. Marshall's Microbiology.

303, a & b. Haas and Hill, Introduction to the Chemistry of Plant Products; Duggar's or Green's Plant Physiology.

304. Duggar's Fungous Diseases of Plants.

305. Chamberlain's Methods in Plant Histology.

306. Gray's School and Field Botany, revised edition.

307-308. Hammarsten's Physiological Chemistry; Hawk's Physiological Chemistry.

309. Kraemer's Botany and Pharmacognosy.

DEPARTMENT OF PHARMACY.

PROFESSOR BLAKE.
ASSISTANT ANDERS.
ASSISTANT MOTLEY.

The pharmacy department of this institution is a member in good standing of the American Conference of Pharmaceutical Faculties.

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than 250 drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, origin, habitat, constituents, medicinal action and dose.

JUNIOR CLASS.

401. (a). Pharmacy: Metrology; specific gravity; heat and applications of heat; fundamental operations of pharmacy; apparatus used in pharmaceutical processes; pharmaceutical arithmetic. *Three hours, entire session.*

(b). Pharmaceutical laboratory: Preparation of official and non-official galenicals, including the following classes of preparations: waters, spirits, liquors, mucilages, pills, elixirs, oleates, tinctures, etc. *Two hours, lectures, six hours laboratory, second and third terms.*

Interior Pharmaceutical Laboratory

402. Pharmacognosy: The study of crude drugs; lectures, recitations, and practical work in identification. *Four hours, entire session.*

406. Pharmaceutical chemistry: A study of the official salts, official title, chemical formula, reactions, description, physical identification, dosage, etc. Two *hours, second and third terms.*

SENIOR CLASS.

403 (a). Pharmaceutical technique and manufacturing pharmacy: Official and non-official galenical and chemical preparations; a thorough study of the U. S. P. and N. F. class work. *Three hours, entire session.*

(b). Manufacture of more difficult galenicals and U. S. P. chemical preparations; pharmaceutical testing; drug assay; compounding of fifty prescriptions. *Fifteen hours, entire session.*

404. Pharmacognosy: The study of crude drugs. This course is a continuation of course 402. *Three hours, first term.*

405. Prescription reading and incompatibilities: Lectures and recitations. *Three hours, second and third terms.*

407. United States Pharmacopoeia: This course is primarily a review intended to prepare the student to stand the State examinations. It covers all crude drugs, organic and inorganic chemicals and preparations found in the U. S. P. *Three hours, second and third terms.*

408. The work of the third year for the pharmaceutical chemist degree is elected from the following courses:

(a). An advanced course in the manufacture of galenicals and organic and inorganic chemicals used in medicine.

(b). A course in the testing of drugs and medicinal chemicals for impurities by pharmacopoeial methods.

(c). A course in pharmaceutical assaying, including the assay of alkaloidal drugs, glucosidal drugs, resinous drugs, the valuation of fixed and volatile oils, pepsin, diatase, etc.

(d). A course in water analysis.

(e). A course in milk and butter analysis.

(f). A course in physiological chemistry.

(g). A course in organic preparations.

(h). An advanced course in toxicological analysis.

(i). The presentation of a satisfactory thesis.

(j). Food and drug analysis.

Any student who completes the work of the three-year course in such a manner as to prove himself a competent analyst will be granted the degree of Pharmaceutical Chemist.

TEXT AND REFERENCE BOOKS.

Arny's Principles of Pharmacy, Steven's Pharmacy and Dispensing, Kraemer's Botany and Pharmacognosy, Caspari's Treatise on Pharmacy, Sayre's Organic Materia Medica and Pharmacognosy, Culbreth's Materia Medica and Pharmacognosy, Scoville's The Art of Compounding, Beal's Prescription Practice, Dorland's Pocket Medical Dictionary, Ruddiman's Incompatabilities in Prescriptions, O'Connor's Commercial Pharmacy, Lyon's Pharmaceutical Assaying, United States Pharmacopoeia, United States Dispensatory, National Dispensatory, National Standard Dispensatory, King's American Dispensatory, Prescott's Organic Analysis, Allen's Commercial Organic Analysis, Pharmaceutical Journals, Reports of American Pharmaceutical Association.

HORTICULTURE.

PROFESSOR WALKER.
ASSOCIATE PROFESSOR PRICE.
ASSISTANT BROWN.

Students taking horticulture as a major devote the first two years of the regular four-year course to fundamental work of general nature. During the junior and senior years they are given opportunity to specialize. Instruction consists of lectures, recitations, and practical exercises in the laboratory and field. The aim is to make the course thorough—a grounding in the principles and science upon which the best in practical methods is based in the arrangement, establishment, and handling of fruit vegetable, and ornamental plantings, as sources of profit and pleasure.

Numerous avenues are open to the student who thoroughly qualifies himself for engaging in profitable commercial lines in orcharding, nursery, landscape gardening, truck growing, floriculture, the improvement and development of lands. There is an increasing demand for men competent to act as superintendents of large orchards and development projects. Positions are open also to well-equipped men as teachers, county horticultural advisers, and as investigators in the experiment stations in the several states, and in the United States Department of Agriculture. But aside from such considerations, a knowledge of the main facts of horticulture is of value to every citizen who is interested in home-building and community improvement.

JUNIOR CLASS.

601. Principles of plant culture: This includes the study of germination, propagation, environment, transplanting, etc.; also methods of preparing and sowing seed beds. *Recitations, two hours, first term.*

Text-books: Principles of Plant Culture (Goff), The Nursery Book (Bailey).

601. (a). Plant propagation: Studies including seed testing, propagation of different plants, pruning, etc. Students are required to submit illustrated notes. *Laboratory and field, four hours, first term.*

602. Principles of fruit growing: A study of the more important fruits of the United States with especial reference to their cultivation and fertilization. Details of marketing southern fruits are studied. *Recitations and lectures, one hour, laboratory two hours, second term.*

Text and reference books: Principles of Fruit Growing (Bailey), Popular Fruit Growing (Green), Lessons in Fruit Growing (Goff), Citrus Fruits (Hume), American Fruit Culturist (Thomas).

603. Vegetable gardening: Studies of the principal truck and garden crops with notes as to the origin, classification and economic importance; methods of planting, fertilizing, harvesting, storing and marketing these crops. *Recitations and lectures two hours, laboratory two hours, second term.*

Text and reference books: Vegetable Gardening (Bailey,) Up-To-Date Truck Growing in South (Davis); Vegetable Gardening (Vilmorin), Southern Gardener's Manual (Newman), Vegetable Gardening (Watts).

603 (a). Vegetable gardening: A continuation of course 603 with a special emphasis upon the commercial

side of truck growing. *Recitations and lectures, two hours; laboratory, two hours, third term.*

604. Orchard technique: A continuation of course 602 with especial reference to orchard management, such as spraying and pruning, and cultivation. *One hour lectures, two hours laboratory, third term.*

References: Pruning Book, Horticulturists' Rule Book (Bailey).

SENIOR CIASS.

605. Pomology: Varietal studies of fruits; their origin and classification. Exercises in scoring and describing fruits, pecans, etc. A study of fruit production for the home market, commercial market and canning. *Recitations and lectures, two hours, first and second terms; laboratory two hours, first term.*

Text and reference books: Systematic Pomology (Waugh), Fruit Harvesting, Storing and Marketing (Waugh), The American Fruit Culturist (Thomas).

606. Landscape gardening: An introduction to the general subject of landscape design. The trees, shrubs, vines, perennials and annuals adapted for Southern gardening are studied. Individual problems are presented for the embellishment of the home and school grounds and plans for public squares and parks are studied. *Lectures, three hours; laboratory, two hours, third term.*

Text: Landscape Gardening (Waugh). References: Modern Civic Art (Robinson), The Landscape Beautiful (Waugh), and other authors.

607. Canning: Study of the different methods of canning, with reference to handling the by-products of the orchard and garden. *Lectures, one hour; laboratory, two hours, first term.*

608. Floriculture and greenhouse construction: An elementary course in floriculture with special reference to the growing of the commoner cutflowers and decorative plants. *Laboratory, four hours, second term.*

609. Forestry: A study of the forest conditions of Alabama, the care of woodlots, and the uses of the different Southern woods. Methods of preservation are also studied. *Recitations and lectures, two hours; laboratory and field exercises, two hours, second term.*

Text and reference books: First Book of Forestry

(Roth), Practical Arboriculture (Brown), Primer of Forestry (U. S. Dept. of Agriculture), Principles of Handling Woodlands (Graves), Economics of Forestry (Fernon), Principles of American Forestry (Green), Shade trees in Towns and Cities (Solotaroff).

610. Plant breeding: A study of the improvement of fruit and vegetables; the theories and laws of plant breeding and their relation to horticultural production. *Lectures and recitations, two hours, second term.*

Text and reference books: Principles of Plant Breeding (Bailey), Plant Breeding (Davenport), The Mutation Theory: Species and Varieties (Devries).

611. Thesis: Students who expect to take major work in horticulture should select thesis subject not later than October 1st.

ENTOMOLOGY.

Professor Hinds.
ASSISTANT PROFESSOR BUCK.
ASSISTANT PROFESSOR THOMAS.

In accordance wih the catalogoue requirements the work in Entomology is taken by all senior students electing an agricultural group of courses, and by the special two-year agricultural students during their second year. In addition to this senior work the subject is open to postgraduate students, who have completed the senior course satisfactorily, as an elective course leading to the degree of Master of Science. The senior work is given during the fall and spring terms only, while the postgraduate work continues during the college year. In general the instruction is given by lecture courses supplemented by collateral reading as assigned and with appropriate laboratory and field exercises.

The senior courses are designed to familiarize the students who anticipate engaging in agricultural work with the most important general facts of entomology as an educational science and with its importance as a subject having wide economical application. So far as possible in the brief time available, they are made familiar with some of the most common insect pests, and with general methods of insect control. Particular emphasis is given to the importance of insect species in their effects upon health of domestic animals and of man especially. A foundation is laid during this year for postgraduate study which may fit men to fill some of the many attractive openings in this field which are quite rapidly multiplying in the South.

Excellent accommodations for the department are now provided on the first floor of Comer Hall. The combined lecture and laboratory room provides accommodations for sixty or more men. In connection with the range of greenhouses there is also a large workroom for experimental and demonstrational work with insecticides and an insectary, 16 x 40 feet, within which the study of insect problems may be conducted at any time under controllable conditions.

A text-book is required to supplement the lectures in this subject, and reference publications are at all times available to the student. The lectures are also supplemented by appropriate laboratory work, field exercises, the insect collection, photographs, etc., belonging to the department.

701. Structure and development of insects: The general relation of insects to other animals, showing their origin, distinguishing characteristics and the principal structures upon which they are classified, are here considered. A general study is made of the structure and physiology of insects relating to fundamental principles in their life, habits, and reproduction. The most important points in the collection, mounting and preservation of insect specimens are also studied.

702. Ecology of insects: Under this heading are considered some of the most important and interesting of entomological subjects, among which are the general relation of insects to the health and welfare of mankind through the transmission of preventable diseases and the production of articles having a large commercial value. Protective devices of insects and their control through exceedingly complicated but important natural factors are among the subjects considered.

703. Important insect pests: As full study as the limited time permits is made of the pests of greater economic importance in the household, the orchard, garden, and

Judging Cattle

greenhouse, the enemies of field crops, stored products, etc.

704. Methods in insect control: The principles of insecticide preparation and application are explained and illustrated. This work is supplemented by an exhibit of the principal insecticide materials. Practice in the preparation of the most commonly used materials is given to emphasize proper and desirable methods. The best types of spraying apparatus are shown and tested, and the student is familiarized with many of the special points in practical work. The importance of the improved methods of agricultural practice is shown and the logical basis of their effectiveness is explained.

705. Zoology: A general course in zoology is offered for sophomore students in agriculture. It includes a brief discussion of the relation of animals to plants and minerals, the nature of cells, the functions involved in life processes and of the classification and distribution of animals. The different animal groups are studied, beginning with the single celled animals, and leading gradually to the most complex forms. The characteristics distinctive of each group are shown and an illustrative study is made of one or more typical representatives of the principal subdivisions in these groups.

Herrick's Text-book of Zoology is used, supplemented by lecture notes, and the work illustrated by microscopic mounts of protozoa, both fresh and stained, microscopic mounts showing cell structures of various tissues, alcoholic specimens, dried specimens, charts and models. *Three hours, third term.*

ANIMAL HUSBANDRY.

PROFESSOR TEMPLETON.
ASSOCIATE PROFESSOR GIRTON.
ASSISTANT WENDT.

Instruction in this department is given in the class room, in the laboratories, and upon the animal husbandry farm with the live stock. While lectures are given on judging animals, the instruction does not stop with the lectures; the students are taken to the barn and feed lots where the animals are placed before them and each student is required to make a written report concerning the animals. Class-room work in dairy instruction is supplemented, strengthened, and made practical by requiring each student to work in the dairy laboratory where butter is made, where the Babcock test is used, where the lactic acid in cream is determined, etc. In the senior year, trips are made to cities, state and county fairs, and farms to study live stock judging and management. The livestock provided by the college for the students' use in studying breeds and judging consists of pure-bred herds of Jersey and Hereford cattle; Duroc-Jersey, Berkshire, and Poland-China swine. Light horses and mules are available for class work.

The department now has the complete herd books of practically all the leading breeds of live stock in America. By the use of these the student is enabled to inform himself in regard to all pedigrees and to study the different scales of points which the breeders have adopted to represent the highest types of the various breeds. All class room instruction is given by means of text-books and lectures. Many of the lectures are illustrated by the use of a baloptican.

The courses in this department may be grouped under five main heads:

(1) Judging of live stock, (2) breeding of live stock, (3) feeding of live stock, (4) management of live stock, (5) dairying.

The student is given an opportunity to specialize in animal husbandry throughout the junior and senior years. The courses are as follows:

FRESHMAN CLASS.

801. Breeds of live stock: The object is to study the origin, history of development, the characteristics of each one of the leading breeds of livestock, and to discuss special adaptability of each breed to Southern conditions. The lecture work is supplemented, as far as possible, by representative animals of the breed under discussion. *Lectures, two hours, latter half of first term.*

SOPHOMORE CLASS.

802. Judging beef cattle: The object of this course is to make the student familiar with the various classes and

grades of cattle recognized by the leading stock markets and to familiarize him with the leading beef breeds. Instruction is given by lectures, the use of the score card, and by comparative judging. *Laboratory, two hours, first term.*

803. Judging dairy cattle: The student is familiarized with the dairy types and breeds, and is given judging instruction by the employment of the same methods as used in beef cattle judging (802). *Laboratory, two hours, second term.*

804. Dairying: The study of the secretion, character, composition, and production of milk, is made; proper methods of handling milk and cream for consumption, pasteurizing, sterilizing. The students are given thorough work in using the Babcock test and the lactometer, and the lactic acid test, together with the ordinary tests for the purity of milk and its adulterants. They are also drilled on all the phases of butter-making and standardizing milk and cream. Familiarity with the construction, care, and operation of the leading makes of cream separators, and other dairy equipment, is required. This course will be required of juniors in 1915-1916. *Lectures two hours; laboratory, two hours, first term.*

JUNIOR CLASS.

806. Swine judging: Considerable time is given to the study of the market classes of grades and the leading breeds of lard and bacon types of hogs adapted to southern conditions. The lecture work is followed by the students using the score card and doing comparative judging. *Laboratory, four hours, second term.*

807. Sheep judging: The student is instructed in the methods of judging sheep, considering the market classes and grades, and the characteristics of the principal breeds. *Laboratory, two hours, third term.*

807. (a). Advanced stock judging: This course is for junior agricultural students who are especially interested in livestock judging, and is a prerequisite to making the intercollegiate stock judging team. No college credit is given. *Hours to be arranged, latter half second term and the third term and first half following fall term.*

SENIOR CLASS.

808. Principles of animal breeding: The lectures of this course will embrace the principles and practices involved in the improvement of the domestic animals. The subjects of reproduction, variation, selection, heredity, line breeding, inbreeding, cross-breeding, grading-up, etc., will be discussed in their relations to practical breeding problems. *Lectures, two hours, first term.*

809. Advanced feeding: This course consists of lectures, supplemented by reference reading, upon the most profitable methods of producing, finishing, and marketing, pork, beef, and mutton. The various concentrates and roughages are discussed as to their importance and efficiency as feeds for horses, mules, and dairy cattle. *Lectures, three hours, entire session.*

810. Meats: This consists of a study of the structure and composition of meats, quantity, cost and food value of the various cuts of beef, mutton, and pork; exercise is also given in judging the carcasses of the different classes of animals. A study is made of how the home-dressing and home-curing of pork is carried on. Lectures are given upon the effect of feeding and breeding of the different animals as affecting the value of the carcass and the quality of the meat. *Laboratory, two hours, second term.*

811. Poultry: In this course an effort is made to acquaint the student with the different types of poultry with relation to their use and value on the farm. Instruction is given also in feeding, managing, housing, and judging poultry. Required of juniors in 1915-1916. *Lectures, two hours, third term.*

812. Judging horses and mules: Lectures and laboratory work are given in the judging of the various classes of horses and mules which are adapted to Alabama conditions. Required of juniors in 1915-1916. *Laboratory, two hours, second term.*

813. Live stock management: The raising of horses, cattle, sheep, and swine as a business, is discussed in full detail, featuring the care and management in production and marketing. A study is made of the methods used by the most successful stock farmers. Practical work is given in preparing stock for shows and sales. This course will be limited to and required of students

majoring in Animal Husbandry. *Lectures, one hour; laboratory, two hours, entire session.*

814. Herd book study: This includes a study of the various herd books with the view of becoming familiar with the pedigrees of the leading strains and families of the different breeds of livestock. Emphasis is made on the methods and rules of registration for each of the breeds of livestock. The rules and regulations governing the importations of livestock into the United States and into Alabama, together with the rules and regulations governing the moving of live stock within the United States and Alabama, are studied. *Lectures, two hours, second term.*

815. Dairying: This course is outlined to meet the requirements of the senior veterinary students and is very similar to the course outlined in 804. *Lectures, one hour; laboratory, two hours, second term.*

SPECIAL TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR.

816. Dairying: A separate course in this subject giving special attention and instruction for the benefit of the two-year students in agriculture, is maintained. The student is familiarized with the butter fat tests, the use of the lactometer, determination of the lactic acid in milk, churning, cream separation, etc. Practice is also given in determining the various common adulterants of milk. *Lectures, two hours; laboratory, four hours, first term.*

817. Live stock feeding: This course is offered for the benefit of the first-year veterinary students and the first-year special agricultural students. The food requirements of the animals' bodies are briefly considered. All through this course the practical, rather than the scientific side of feeding is emphasized. Special reference is made to feeding horses and dairy cattle. Veterinary students are allowed to discontinue this subject at the middle of the second term. *Lectures, two hours, entire session.*

818. Live stock management: This course, also, is for the first-year veterinary students and the first-year special agricultural students. It consists of a series of lectures on the care, housing, and management of horses, cattle, swine, and sheep. *Lectures, two hours; latter half of second, and the third term.*

819. Dairy cattle judging: The second term is devoted to judging dairy cattle, in the place of the course in dairying. A detailed study of the several different breeds of dairy cattle is made, and their chief distinctive characteristics pointed out. Exercises in practical judging are given by the use of the score card and by comparative judging at the barns. *Laboratory, four hours, second term.*

820. Judging beef cattle: In this course the student is familiarized with the leading breeds of beef cattle and a study of the conformation of each type is made by practical judging. *Laboratory, two hours, third term.*

SECOND YEAR.

821. Judging horses and mules: A special course of judging is maintained for the second year special students in agriculture. The various types of horses and mules and the market classes are studied. Representatives of the different classes are brought before the students who are, by detailed study, given an opportunity to become thoroughly familiar with each of them. *Laboratory four hours, first term.*

822. Poultry: This course in poultry consists of the study of the types and breeds; the housing, feeding, and caring for all classes and ages. From time to time hours are spent in judging. *Lectures, two hours, first term.*

823. Swine judging: This course is a continuation of the course of judging begun in the second year by the study of horses and mules. The leading breeds of swine are kept at the station barns, and the student has ample opportunity to become thoroughly familiar with each. The difference in function and conformation between the lard and bacon types, and the scrubs or natives, is pointed out. A study is made in practical judging by the use of the score card and by comparative judging. *Laboratory, four hours, second term.*

824. Meats: This course includes a study of the effects of various feeds on the meat and lard of hogs, and other animals; finishing stock for slaughter; slaughtering; dressing and curing of the meat. In the laboratory work the student is required to put into practice the methods taught. *Lecture, two hours; laboratory, two hours, second term.*

825. Principles of breeding. A course of study of the principles of breeding live stock, giving special attention to the problems of the practical breeder. Much attention is given to fecundity, in-breeding, cross-breeding, grading up, and inheritance. Variation; its causes and benefits are studied. *Lectures, two hours, third term.*

826. Sheep judging: A course is given to make the student thoroughly familiar with the leading breeds of sheep, their conformation and uses. *Laboratory, two hours, third term.*

SCHOOL AGRICULTURE.

JUNIOR AND HOME ECONOMICS EXTENSION DEPARTMENT.

L. N. DUNCAN.
MADGE J. REESE.
J. C. FORD.
I. B. KERLIN.
* NELLIE TAPPAN.

This department was created in June, 1909, and is a part of the agricultural extension work conducted in Alabama by co-operation between the College and the United States Department of Agriculture.

The special lines of work in this department are as follows:

Organization of boys' corn clubs,
Organization of boys' pig clubs,
Organization of girls' canning clubs,
Home demonstration work for farm women,
Movable schools of agriculture.

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* In co-operation with the Alabama Girl's Technical Institute, Montevallo, Alabama.

COLLEGE OF VETERINARY MEDICINE AND SURGERY

By direction of the United States Civil Service Commission and Department of Agriculture, this college has been added to the list of accredited veterinary colleges, and placed in class A.

VETERINARY MEDICINE AND SURGERY.

PROFESSOR CARY.
ASSISTANT PROFESSOR MCADORY.
INSTRUCTOR WEBB.
INSTRUCTOR FERGUSON.
INSTRUCTOR PRITCHETT.
LECTURER BAHNSEN.
LECTURER WHITE.

PHYSIOLOGY AND VETERINARY SCIENCE.

101. Physiology: The students in the regular and special agricultural courses, in all of the pharmacy courses, in the course in chemistry and metallurgy, and in the three-year course in veterinary medicine and surgery, all study elementary physiology. The aim of the course is to teach anatomy, histology, hygiene, and sanitation. The instruction is given by lectures, demonstrations, and text-book. Text-book, Martin's Human Body (Advanced). *Two hours, entire session.*

102. Veterinary science (elective): For students in agriculture. Lectures and chemical work in the junior year. In the senior year, the student may elect, with the consent of the professor in charge, six hours in the regular three-year veterinary course. The aim of the instruction given to the agricultural students is to teach such lessons as will enable them to prevent many diseases on the farm by correct hygiene and sanitation. At the same time they will be instructed in the ways and means of treating and handling the common diseases of farm animals. This work will prepare them for the "first aid" treatments and emergencies as well as for the course in veterinary medicine and surgery. *Five hours, junior year; six hours, senior year.*

Veterinary Laboratory

VETERINARY MEDICINE AND SURGERY.

The three-year course in veterinary medicine and surgery leads to the degree of Doctor of Veterinary Medicine. It is the outgrowth of fifteen years' work of the department of physiology and veterinary science. Moreover, it has been established to meet the demand of the young men of the South who desire to become educated veterinarians, and for students who desire to prepare for the study of human medicine.

EQUIPMENT.

The main veterinary building has an independent gas plant and a connected sewer system. It is supplied with electric lights and water. The building contains an office, two lecture rooms, a physiological laboratory, and a museum on the first floor; on the second floor, are located two research laboratory rooms, a library and reading room, a large lecture room containing an incubator room, and all the necessary apparatus for pathological, histological, and bacteriological work.

A separate building is used as a house for small animals (rabbits, guinea pigs, pigeons, etc.) that are employed for experimental and demonstration work in bacteriology, histology, and physiology.

The anatomy division has a separate one-story brick building with good ventilation and extensive sky light. It is supplied with gas, water, and electric lights. The anatomy museum contains the skeletons of man, the horse, the ox, the sheep, and the pig, and models of limbs and special organs of man and the horse. It is also supplied with different lots of bones of the horse with dissected and dried limbs showing the relation and attachment of muscles. An hexagonal operating pavilion thirty-six feet in diameter has just been completed. It is supplied with water and electric lights and lockers for students.

The veterinary hospital contains five box stalls, four open single stalls, an office, and feed room, on the first floor; a large room for storing hay, fodder, and feed, is found on the upper floor. The veterinary department has for its exclusive use about six acres of land divided into lots, pens and paddocks. In one of the lots, are located two large sheds having a capacity for accommodating one hundred and twenty-five cattle or large animals. These sheds are used for tick fever inoculation purposes and for isolation of animals affected with infectious diseases.

A hog cholera serum plant, costing $25,000, will be built and equipped at once. This will offer fine facilities for the students to study this line of technical work. Plans are ready for the construction and equipment of a new and modern veterinary building. This will be erected in the near future.

The three-year veterinary course students take five terms of work in the department of animal husbandry and dairying, one-half year's work in pharmacy; four terms of work in the chemical department, one term of work in botany and one year's work in English. The facilities and equipment of these departments are excellent.

The veterinary course is especially strong in practical laboratory work.

1. In anatomy the work of dissection is continued through the first and second years and the first term of the third year. It is a well established fact that useful surgical or real anatomy can not be acquired without careful and thorough work in the dissecting room. Special stress is given to comparative anatomy of the horse, ox sheep, pig, and dog.

2. Clinical laboratory work is also required throughout the course. The clinical work comes six days in the week and the cases presented embrace mules, horses, cattle, sheep, dogs, poultry, and hogs. The variety is such as to illustrate a large number of diseases, surgical operations, and therapeutic applications.

3. The physiological laboratory is supplied with apparatus for tests and experiments in physiology.

4. The laboratory for pathology, histology, and bacteriology is extensive, and is fully fitted with the latest apparatus. This laboratory has been the outgrowth of twenty years of cumulative additions. The aim is to teach students to work in the laboratory rather than to memorize the printed page of the text-book.

5. In chemistry and toxicology the students work in one of the best of chemical laboratories.

6. In pharmacy, the students work in practical pharmacy for five hours a week for a half-year. In this they

learn to recognize compounds, and dispense drugs.

7. The animal husbandry department affords ample facilities for practice in feeding and judging cattle, sheep, hogs, and mules.

8. The dairy department gives practical laboratory work in dairy operations and in handling and feeding dairy cattle.

9. The botanical department is well equipped and gives excellent opportunity for laboratory work.

10. The subjects in the course of study are such as are required in the leading veterinary colleges of America. The course meets the requirements of the American Veterinary Medical Association and the Bureau of Animal Industry and United States Civil Service Commission. It is the aim to have the teaching staff meet the requirements of the best standards. The length of the course is three years of nine months each.

FIRST YEAR.

103. Human physiology: Elementary human physiology. The instruction is given by lectures, demonstrations, and text-books. *Two hours, entire session.*

104. Histology: Deals with the minute anatomy of the various tissues. It includes methods of fixing, imbedding, sectioning, mounting, staining, and a mocroscopical study of the tissues. Histology is studied by lectures and by laboratory work. *Five hours, first and second terms.*

105. Embryology: This is a study of the development of the embryo and is designed to prepare the students for the study and practice of obstetrics. *Five hours, third term.*

SECOND YEAR.

106. Veterinary physiology, recitations: Treats of the actions or functions of the various vital organs of the animal body. Attention is also given to the laws of health and the conditions most favorable to the healthy action of the animal body. *Two hours, first and second terms.*

107. Physiology laboratory: A part of the course deals with chemical physiology and the vital processes of the organs of the domestic animals. *Two hours, third term.*

108. Bacteriology: The principles of bacteriology and chief pathogenic organisms are carefully studied. *Three*

hours in class room and three in laboratory, first term and first half of second term.

109. Pathology: This deals with the general pathological anatomy and histology as observed in man and different species of animals, and a study of the cellular changes in diseased tissues and organs. *Three hours recitations and three hours in laboratory, last half of the second term and entire third term.*

110. Obstetrics: Practical work is given as cases are presented. *Two hours, first and second terms.*

111. Special surgery: This includes surgery of the head, eye, neck, chest, limb, skin, abnormal organs, urinogenital system and castration. It consists of lectures supplemented by practical operations. *Two hours, second and third terms.*

Botany: A study of medicinal and poisonous plants. *Six hours, third term.*

THIRD YEAR.

112. Surgical exercises: In these exercises the student is required to perform the principal surgical operations. *Two hours, second term.*

113. Infectious diseases: This is a study of the diagnosis and preventive sanitation of the animal plagues. *Two hours, first term; three hours, second term.*

114. Parasites: This subject deals with the parasitic infestations of man and animals. An abundance of material is available. *Two hours, second and third terms.*

115. Meat inspection: Embraces recitations, lectures, and abattoir inspections in the smaller and larger cities of the State. *Two hours, first and second terms.*

116. Milk inspection: The course includes the study of milk adulterants, sanitary construction of dairy barns and dairy houses, conditions of cows and the diseases of dairy cattle; the feed, the water supply, the dairy cans, bottles and wagons, the diseases and filth germ of milk. *Three hours, third term.*

117. Urinalysis: This course is largely laboratory work. *Three hours, third term.*

118. Toxicology: Is a study of the chemical, physical, physiological actions of poisons. The laboratory courses embrace the offical tests for poisons. *Seven hours, third term.*

Thesis: Development and preparation of an original theme on some subject relating to veterinary medicine and surgery, or veterinary sanitation and hygiene is required. *Four hours, entire year.*

FIRST, SECOND AND THIRD YEARS.

119. Comparative anatomy: Based upon the descriptive anatomy of the horse. It includes lectures and dissection. The course in anatomy is continued in the dissecting room throughout the first and second years, and the first term of the third year. The work will be taken up in the following order:

(a) Osteology: Requires a thorough knowledge of the bones of the horse and the comparative variations as found in the ox, pig, dog, and sheep.

(b) Arthrology: The course consists in a study of the joints or articulations and the synovial sacs.

(c) Myology: Includes a study of the muscles with their tendons and synovial sheaths or bursæ.

(d) Splanchnology: Treats of the internal organs found in the thorax and abdomen. Special attention will be given to these subjects in the horse, ox, sheep, pig, dog, and cat. It is designed both for the practitioner and meat inspector.

(e) Angiology: It treats of the blood vessels and heart and lymph vessels and glands. This is designed to meet the requirements of the practitioner and meat inspector; hence, the students must locate the lymph and glands in the horse, ox, sheep, pig, and dog.

(f) Neurology: Calls forth a study of the cerebo-spinal and sympathetic nervous systems.

(g) Special anatomy: Comprises the study of the organs of special sense, urino-genital organs, the foot and the larynx.

120. Materia medica and therapeutics: A study of the principal drugs used in veterinary medicine, their doses, physiological actions, therapeutic uses, and prescription writing. *Third term of second year; and first and second terms of third year.*

121. General surgery: This course embraces the general principles of surgery. *Two hours, third term of second year; and first term of third year.*

122. Clinical laboratory: Free clinics. Students are required to study each case. A great variety of cases is

always presented. *One to two hours each day, second and third years, and three hours on Saturday for all classes.*

123. Veterinary medicine: This deals with the principles and practice of veterinary medicine. *Three hours, second and third years.*

124. Physiology and hygiene—Teachers' course: The department can give the following line of instruction to prospective Alabama teachers.

1. Structure of human body and animals.

(a). Study of cells, tissues and organs.

(b). How to use the smaller animals in teaching naked-eye anatomy.

2. Physiological actions of the different parts and products of the animal and the human body. This embodies:

(a). Functional tests.

(b). Chemico-physiological tests.

(c). Physico-physiological tests.

3. Hygiene, embracing instructions in personal health problems.

4. Sanitation, including health conditions of cities, homes, public buildings, farms, barns, dairies, etc.

5. Care of animals on the farm and in the city.

TEXT AND REFERENCE BOOKS.

General Chemistry—Remsen's College Chemistry.

Physiology Recitations—Martin's Human Body.

Physiology Laboratory—Fish's Elementary Exercises in Physiology; Smith's Manual of Veterinary Physiology.

English—to be announced on September.

Anatomy—Sisson's Comparative Anatomy.

Clinical Laboratory—Blank Books or Note Books.

Histology—Piersol, Bohm, Davidaff and Huber, Bailey, and Lectures.

Embryology—Hertwig-Mark; Minot. Lectures.

Livestock Management—Lectures and text-books to be announced later.

Feeding Livestock—Smith; Henry; Jordan.

Animal Husbandry—Crang, and Lectures.

Botany—Lectures; Pammel's Poisonous Plants.

Pharmacy—Lectures; Stevens.

Bacteriology—Lectures; Moore's Bacteriology.

Pathology—Zeigler; Kitt; Adami; Kingsley.

Obstetrics—Williams; DeBruin; Fleming; Dalrymple.

General Surgery—Lectures and Frohner; Moeller.

Special Surgery—Lectures; Moeller; Merillat; Frohner.

Surgical Exercises—W. L. Williams.

Materia Medica and Therapeutics—Wilcox; Winslow; Fish; Quitman; Frohner.

Veterinary Medicine—Law, Vols. 1, 2, and 3. Mossou; Friedberger and Frohner.

Infectious Diseases—Moore—Law. Vol. 4.

Parasites—Neuman—Law. Vol. 5; Stiles; Kaupp.

Milk and Meat Inspection—Van Slyke; Conn; Ostertag; Peters; Eddleman; Eichhorn; Lectures.

Toxicology—Tanner; Fish.

Urine Analysis—Fish.

Restraint of Animals—White.

ORGANIZATIONS

CADET BAND.

A. L. THOMAS, BANDMASTER.

Three musical organizations are maintained—the band, the orchestra, and the glee club. Membership in these organizations is open to any student who has musical talent.

The band is maintained by the college for students who desire to develop their musical ability and for those who wish to learn music. It furnishes music for all college exercises and takes part in military manoeuvres. Regular and individual instruction is given free of charge during the first term, embodying the rudiments of music and general musical information in conjunction with the practical instruction on the instrument. Public concerts are given weekly during the second term, and engagements elsewhere are usually arranged.

A gold medal is given each year by the bandmaster to the member who makes the best record.

The orchestra is an organization for musical recreation, and members are carefully selected by the director according to their musical ability.

The glee club, comprising the quartet, chorus, and stringed instruments, is a student organization. The services of a musician are secured to assist with the instruction and training of the quartet and chorus. Two concerts are given at the college and concert tours are arranged during the second and third terms.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

S. J. SMITH, GENERAL SECRETARY.

This association is regularly organized and a suite of well furnished rooms has been secured for its exclusive use. Through its weekly meetings and Bible Study Classes it exerts a wholesome Christian influence among the students.

Students are advised to unite with the association when they enter the college.

The ladies of the different churches in Auburn are organized into an auxiliary association to the Y. M. C. A. of the college.

LITERARY SOCIETIES.

There are two literary societies connected with the Institute—the Wirt and the Websterian. Each has a hall in the main building. These societies hold celebrations on the evenings of Thanksgiving day and 22nd of February.

To encourage the literary societies the trustees have directed that a medal be awarded at Commencement to the member of each society who is both efficient and regular in attendance, and who is the best debater. The method of selection is determined by the faculty.

SOCIETY OF THE ALUMNI.

The annual alumni oration is delivered by a member of the society in Langdon Hall on Alumni Day, Tuesday of Commencement week.

OFFICERS OF THE ALUMNI ASSOCIATION.

Rev. Walter C. Whitaker, '84, Knoxville, Tenn.	Orator
Thomas Bragg, '01, Auburn, Ala.	President
R. D. Webb, '97, Auburn, Ala.	Secretary and Treasurer

Non-Resident Vice-Presidents.

E. N. Brown, '82	Mexico City, Mexico
Francis C. Dillard, '75	Sherman, Texas
E. A. Price, '80	Nashville, Tenn.
Arthur Redding, '94	Atlanta, Ga.
Oliver J. Semmes, Jr., '97	Pensacola, Fla.
M. S. Sloan, '01	New Orleans, La.

Alabama Vice-Presidents.

B. B. Ross, '81	Auburn, Ala.
W. W. Pearson, '82	Montgomery, Ala.
C. W. Ashcraft, '88	Florence, Ala.
Roger ap C. Jones, '87	Selma, Ala.
J. Thos. Heflin, '91	Washington, D. C.
Tracy Lay, '03	Gadsden, Ala.
Jno. V. Denson, '05	Opelika, Ala.
J. R. Rutland, '00	Auburn, Ala.
B. L. Shi, '04	Auburn, Ala.
M. A. Frazer, '06	Mobile, Ala.
Rev. Thomas Mangum, '96	Union Springs, Ala.
Howard Lamar, '82	Jasper, Ala.

ENGINEERING SOCIETY.

All students in the courses of engineering and architecture are eligible for membership in the Engineering Society. Meetings are held twice a month, and the chief purpose of the society is to promote personal fellowship among the members, and closer affiliation with practical engineers. Prominent engineers in all lines are invited to address the society from time to time upon subjects connected with their work. At other meetings the program is supplied by the student members, thus giving opportunity for the students in one department to become somewhat familiar with the problems met with in other lines of engineering.

Suitable quarters have been provided for the society in the new Broun Engineering Hall. No regular dues are required of the members, but an occasional assessment is made to cover necessary expenses.

AGRICULTURAL CLUB.

The Agricultural Club was organized in 1907. All students interested in agriculture and the agricultural sciences are eligible for membership. The members of the Agricultural Faculty take an active part in the work of the club. Meetings are held once a week, and an effort is made to promote interest in all lines of agriculture, to develop a spirit of good fellowship among the students of the course, and to bring them in contact with prominent workers of the science as opportunity offers to present them on the regular program.

Meetings are held in the club room in Comer Agricultural Hall.

VETERINARY MEDICAL ASSOCIATION.

The Veterinary Medical Association was organized in 1907. The meetings are held bi-weekly in the veterinary building. Medical subjects are discussed by the members or by some invited speaker or member of the veterinary faculty. All students of the Veterinary College are eligible to membership. The objects of the association are fraternal, intellectual and cultural. The annual banquet of this association is an occasion of good fellowship for the students, faculty, and veterinary alumni.

GYMNASIUM AND ATHLETIC FIELD.

The new Alumni Gymnasium, which will be ready for use in 1915-16, offers improved facilities for complete physical training in outdoor and indoor work. The college authorities attach due importance to the value of robust, physical health. Military drill according to the Federal Law is required of all able-bodied students, and ample opportunity is also offered for work in the gymnasium and field sports. The aim of the athletic authorities is to develop, not only a set of highly trained athletic experts in particular fields of sports, but to interest each individual student in the care and development of the body through some form of athletic activity. While therefore, every effort is made to maintain a high standard of athletic efficiency in various representative teams, every member of the "Auburn" student body is encouraged to gratify his love for games and sports, as well as to assimilate the "Auburn Spirit" in its intensest form; a spirit splendidly exemplified by the Alumni in making possible this handsome Gymnasium. This beautiful athletic home ranks "Auburn" as one of the best equipped colleges in the land for the development of physical welfare of its students. Under present conditions it is possible for two thousand students to take physical exercise at the same time.

Drake Field—A new athletic field, named in honor of the Surgeon, Dr. J. H. Drake, has been provided for baseball, football, and track athletics. It is situated on the experiment station grounds near the gymnasium. It will be gradually beautified and equipped with necessary buildings and accommodations.

DISCIPLINE REGULATIONS.

The government of the college is administered by the president and faculty in accordance with the code of laws and regulations enacted by the trustees.

Each student upon entering is required to sign his name in the matriculation book and pledge himself to obey the rules and regulations of the college.

All students are required to wear the prescribed uniform.

Attention to study and punctuality in attendance on recitations and all other duties are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using or causing to be brought into the college limits, intoxicating liquors.

Students are not permitted to participate in any public entertainments, or game, without previously obtaining the consent of the faculty.

No student will be permitted without the approval of his parent or guardian, to take part in a public game of football.

No student who has failed in two or more subjects will be permitted to be absent from college for athletic contests or other purposes.

(a) Every absence from recitation or examination is graded zero.

(b) When the grade of a student is lowered by reason of absence, for which satisfactory excuse can be rendered, a special re-examination may be subsequently granted, and the grade made on the special re-examination alone is substituted for that previously received.

(c) Only sickness, as reported by the surgeon, or absence by reason of family sicknes, or official or collegiate business, will constitute a satisfactory excuse for granting a re-examination.

When a student is called away from college by his parents for reasons other than those specified above, his zeros for absence are not removed.

A student who, on surgeon's certificate, is excused from any subject will be required to substitute other work approved by the faculty.

The term grade of a student is the average of his daily sessional and term examination marks, found by giving due weight to the term examination.

Only privates of a senior class in full standing who are candidates for graduation may be excused by the president from all military drills, and also students over twenty-one years of age *at the time of entering college* that are permitted to devote their time to one special study, as chemistry, agriculture, pharmacy, or engineering, provided the time devoted to drill is spent by them in laboratory work.

No student can remain an officer who receives during the session more than one hundred demerits.

BOARDING.

The students board at Smith Dining Hall or with fami-

O. D. Smith Hall

lies of the town of Auburn, thus enjoying all the protecting and beneficial influences of the family circle.

For each house an inspector is appointed, whose duty it is to report those who are guilty of any violation of order. The report of the inspector is made to the commandant at stated intervals.

Students, after selecting their boarding houses, are not permitted to make changes without obtaining permission from the president, and this permission is given only at the close of a term, except for special reasons approved by the parent.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the senior class are exempt.

The drills are short and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students, unless excused on the written request of parents for religious scruples, are required to attend these exercises, and also to attend the church of their choice on Sunday morning.

Opportunities are also offered for attending Bible classes every Sunday.

DISTINCTIONS AND HONORS.

Beginning with the session 1915-1916 certificates of highest distinction and of distinction will be given on the basis of credits, one credit being considered as the equivalent of one recitation per week for one term. Two hours of laboratory or shop work or drawing are counted as one hour of recitation. An undergraduate student taking less than an average of eighteen credit hours per term will not be eligible for distinction. Certificates will be awarded to those students who have not received more than forty demerits and who comply with the scholarship requirements announced by the faculty.

Members of the senior class who attain highest distinction are published as *Graduates with Highest Honor;* those who attain distinction are published as *Graduates with Honor;* seniors who do not attain distinction but who attain a grade of sixty per cent or above are published as *Graduates.*

RECORDS AND REPORTS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

At the close of each term and at regular intervals reports giving the grade made by each student are sent to the parent or guardian.

EXAMINATIONS.

Written examinations on the studies of the half-term are held by each professor during the months of October, February, and April. Each examination occupies one hour.

At the end of each term written examinations or written and oral, are held on the studies passed over that term.

Special examinations are held only by order of the faculty and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters college shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except for providential reasons.

HONOR SYSTEM.

During the session of 1910-11 the Honor System, which for years had been in effect in the higher classes, was adopted by the entire student-body of the institution, to apply to all work done in class room and on examinations. Under this system the student is pledged neither to give nor receive any assistance, whatsoever.

All students upon entrance subscribe to the Honor System as in force at this institution.

Proper regulations for administering the system have been adopted by the student-body.

The spirit of truth and honor, thus fostered in the examination room, is an efficient means of raising the scholarship, and tends to inculcate high ideals of honor among the students.

SCHOLARSHIPS—PRIZES.

The following scholarships and prizes have been established:

THE WILLIAM LEROY BROUN MEMORIAL SCHOLARSHIP OF $170, established by the Alumni Society, in memory of the late distinguished president of the Institute.

THE LIGON SCHOLARSHIP OF $170, established by Col. R. F. Ligon, Montgomery, Ala.

THE THOMAS SCHOLARSHIP OF $170, established by Judge William H. Thomas, Montgomery, Ala.

THE BALL SCHOLARSHIP OF $170, established by Mr. Fred S. Ball, Montgomery, Ala.

THE DUNKLIN SCHOLARSHIP OF $600, established by Mr. and Mrs. J. C. Street, Opelika, Ala., in memory of Prof. J. T. Dunklin, former professor of Latin in the college.

THE 1908 SCHOLARSHIP OF $150, established by the Class of 1908.

THE ALICE CARR SCHOLARSHIP OF $180, established for young women by the late Miss Alice Carr, Auburn, Ala.

THE RANSOM MEMORIAL SCHOLARSHIP OF $125 per year, established by the Alumni Association in memory of the late Prof. A. McB. Ransom, is available for students in the junior and senior classes of the course in chemistry and metallurgy.

THE JEWISH LOAN SCHOLARSHIP OF $1,000, established by a former student of the college.

A scholarship has been established for worthy musicians who are in need of assistance in defraying their college expenses.

The Henderson Scholarship of $100, established by Judge W. L. Henderson, of Miller's Ferry, Ala.

The Sidney Smith Memorial Scholarship of $100, established by his parents, Mr. and Mrs. Smith, Bessemer, Ala.

The C. S. Yarbrough Scholarship of $1,000, established by Dr. C. S. Yarbrough, Auburn, Ala.

The scholarships enumerated above are loan scholarships, granted to worthy young men and women, to be returned after graduation.

THE ROBERT E. LEE MEMORIAL SCHOLARSHIP OF $100, an annual donation for the son of a Confederate veteran, established by the Children of the Confederacy of Alabama under the auspices of Mrs. Mary G. Pickens.

The above named scholarships and ten other scholarships are administered by the Alumni Society. (*For information, address R. D. Webb, Secretary*).

THE ARCHITECTS' PRIZES, medals to the two members of the senior class in the department of architecture who are most proficient in design. Established in 1911 by the Society of Architects in Alabama.

THE THOMAS ESSAY PRIZE, a gold medal offered by Hon. William H. Thomas, of Montgomery, Ala., for the best essay by any undergraduate student of the college. The essay must be written under the supervision of the department of English.

THE ORATORICAL PRIZE, medal to that member of the junior class who composed and delivered the best oration on junior class day of Commencement. 1914,*Clyde Augustus Donehoo,* Blount County.

THE ORATORICAL PRIZE, for the Annual Inter-Literary Society Contest, February 22. 1915, *Ambrose Camp Duggar,* Lee County.

SOPHOMORE MEDAL IN DECLAMATION for Annual contest, May 1st, 1914: *Henry Varney Witham,* South Dakota.

PRIZE FOR BEST DEBATER, a medal given annually by the Board of Trustees to the best debater in the Wirt and Websterian Literary Societies each. 1914: Wirt—*Lupton Allemong Wilkinson,* Louisiana. Websterian—*Paul Minnis,* Mobile County.

BATTALION MEDAL, for the best drilled soldier. 1914, *Joseph Wheeler Starkey,* Colbert County.

MUSIC MEDAL, 1914, *Benjamin Paul Blasingame,* Lee County.

PRIZE FOR BEST DRILLED COMPANY, a sword given by

Library

Board of Trustees. 1914: *Frank Park Samford,* Montgomery.

LIBRARY.

Librarian, James R. Rutland.
Assistant Librarian, Miss Mary Martin.

The beautiful Carnegie library building is constructed of stone and pressed brick. The reading room is 80 x 40 feet, and the building is equipped with every convenience. It is lighted by electricity and heated by steam. The capacity of the stack room is sixty thousand volumes. The library now contains about 25,000 bound volumes, including valuable reference and scientific books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room and is thus made an important educational feature.

THE O. D. SMITH COLLECTION.

The library of the late Prof. O. D. Smith has been presented to the college by Mrs. O. D. Smith, and is preserved as a memorial to his long and distinguished services to the college.

THE F. D. PEABODY MEMORIAL ROOM.

Through the generosity of Mr. George Foster Peabody, New York City, an annual fund of fifty dollars, income from a permanent investment, is available for the purchase of books and furniture for the "F. D. Peabody Memorial Historical Seminary." F. D. Peabody, Esq., was a distinguished graduate of the Class of 1876.

THE W. D. TAYLOR MEMORIAL COLLECTION.

The engineering library of the late W. D. Taylor, chief engineer of the Chicago and Alton Railway, was bequeathed by him to the Alabama Polytechnic Institute and is preserved by the college as a memorial to this distinguished alumnus. Mr. Taylor was a graduate of the class of '81, and was regarded as one of the leading civil engineers of the United States.

MUSEUM.

The Museum occupies a large room in the third story of the Main Building. It is provided with suitable cases and is equipped with valuable specimens and models of an instructive character.

UNIFORMS.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made by a contractor, and are of excellent cloth manufactured at the Charlottesville mill. A suit, including cap, costs at present $14.00. It is neat and serviceable, and less expensive than ordinary clothing.

LABORATORY FEES.

For each student in the junior or senior laboratory in pharmacy, chemistry, electrical, or mechanical engineering, a fee of $5.00 per session is required for each department. In the department of veterinary medicine, a dissecting fee of $10.00 is charged. In the department of animal husbandry a dairy laboratory fee of $3.00 is charged. These fees are payable *on admission to the laboratory,* and are not remitted.

Special students in laboratory work will pay additional fees for each separate division of work, and will be charged with all material consumed in experiments.

CONTINGENT FEE.

A contingent fee of $2.50 is required to be deposited by each student on matriculation to cover any special or general damage to college property for which he may be liable. General damages are assessed on the body of students.

At the close of the session, the whole of the contingent fee or the unexpended balance, is refunded to the student.

FUNDS OF STUDENTS.

Parents or guardians are advised to deposit with the treasurer of the college all funds desired for sons or wards, whether for regular charges, college fees or board or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc.

The college cannot be held responsible for the expenses of a student unless the funds are deposited under specific instructions from the parent or guardian to the treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble and encourages idleness.

NON-RESIDENT STUDENTS.

Tuition for students not resident of Alabama is $20.00 per session, unless remitted by the trustees to worthy students upon the recommendation of the faculty.

The remission of this tuition fee to non-resident students will be granted in the form of a free scholarship for the succeeding year to those who obtain a distinction the preceding year, or who, by reason of merit, are deemed worthy.

This tuition for non-residents is remitted to sons of ministers of the Gospel.

HONOR SCHOLARSHIPS.

The following non-resident students were granted, each by reason of special merit in conduct and scholarship during the session of 1913-1914 an honor scholarship, which exempted from tuition fees:

Joseph Davenport Browne, Jr.	Tennessee
Julius Albert Fincken	South Carolina
Joseph Best Grimsley	Georgia
Crawford Buchanan Hawkins	Mississippi
Henry Lord Page King	Georgia
Ellison Smyth McKissick	South Carolina
Joel Philip Melvin	Tennessee
William Charles Payne, Jr.	Tennessee
John Boyd Overstreet	Kentucky
Wilbur Thomas Shinholser	Georgia
Ralph Thomas Sims	Georgia
Ernest Slager	Tennessee
Lamar Mims Ware	Georgia
Shu Min Wong	China

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Board, including lodging, fuel, and lights, is furnished at 14.00 to $17.50 per month.

For non-residents of the state, there is a charge of tuition of $20.00 per session, payable on matriculation, in addition to the annual fees payable by all students. A student once entering as a non-resident student will not be permitted to claim residence unless his parent or guardian becomes a resident or taxpayer on property in Alabama. Tuition for non-residents is remitted to sons of ministers of the gospel.

The necessary expenses for a session, not including uniform or books, are, for a resident of Alabama, as follows:

College fees	$ 18.00	$ 18.00
Laundry fee	12.50	12.50
Board, lodging, fuel and lights	126.00	157.50
Total	$156.50	$188.00

By special arrangement with the college authorities, Mrs. M. M. O'Neal and Mr. B. T. Blasingame will accommodate students with board, lodging, and fuel for $12.50 per month.

This estimate does not include the cost of the uniform, $14.00, nor of the books, say from $5.00 to $15.00, or the laboratory fees in the higher classes, $5.00.

AMOUNT OF DEPOSIT.

All fees, including laboratory fees are payable on matriculation. *By order of the Trustees a matriculation fee of* $12.00 *is retained from deposits of students who withdraw. To students who withdraw after one month's residence in college only the remainder of the laundry fee and the contingent fee, less charges, may be returned; no laboratory fee may be returned; after the beginning of the third term only the contingent fee may be returned.*

Fees to be paid on entrance:

Incidental	$ 5.00	
Library	2.00	
Surgeon	5.00	
Contingent	2.50	
Athletic	6.00	
Uniform	14.00	
Laundry fee for session	12.50	
For a resident of Alabama	$47.00—	$47.00
Tuition non-resident		20.00
For a non-resident		$67.00

Besides the above, the student should deposit with the treasurer enough to pay for books, one month's board, incidentals, amounting to say $28.00. Hence a resident of

Alabama should deposit with the treasurer $75.00; a non-resident, $95.00. For a student entering after January 1st, the deposit for laundry fee is seven dollars($7.00).

THESIS.

Each applicant for a degree is required to write and submit to the faculty a thesis, or oration and read or deliver the same at Commencement, if required by the faculty.

There may be presented with the approval of the professor in charge, a carefully written report of special work done in a laboratory, showing independent investigation and discussion of some subject.

It must be given to the professor by the first of May. The subject must be submitted for approval by January 1st.

SURGEON.

The Surgeon is required to be present at the college daily, to visit at their quarters the cadets that are reported sick, and give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering the Institute.

An infirmary has been established, and is properly equipped.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railway of Alabama.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tide-water. By statute of the State the sale of spirituous liquors and the keeping of saloons of any kind are forbidden.

ACADEMIC YEAR.

The academic year for 1915-1916 commences on Wednesday, September 8, 1915, and ends on Wednesday, June 7, 1916, which is Commencement Day.

It is divided into three terms: The first term extends from the opening of the session to Thursday, December 23rd; the second term begins Thursday, January 6th, and ends March 18th; the third term continues to the end of the session.

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